The Builder.

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Ancient Buildings at Famagusta, Cyprus.....From Photographs.
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1. The Courtyard.
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The Court of Appeal and Architects' Drawings.

THE case of Gibbon *v.* Pease has been heard in the Court of Appeal, as reported in our legal column, with the same result as in the original trial. The court ruled that the precedent of Ebdy *v.* M'Gowan applies in every case, whether the building has been carried out or not, and again refused to hear any evidence from architects who could have thrown some light on a matter on which the learned judges were obviously under much and serious misapprehension.

That Law and Justice are totally distinct things we of course all know, or ought to know. "I thought your lordship was sitting there to administer justice," exclaimed a disappointed counsel to Lord Ellenborough; and was met by the reply—"Then you ought to know better, sir; I am sitting here to administer the law." And if judges are convinced, on legal grounds, that a particular precedent is the law, and is applicable to the case in hand, they have no choice but to administer the law; they are appointed for that function, and we cannot complain of them for exercising it. But there are one or two things of which we think the architectural profession have a right to complain. One is, that judges who evidently, from their own comments, are entirely unacquainted with the nature of architecture or with the functions of the architect, should nevertheless refuse even to allow those who could explain these things to them to have an opportunity of attempting to do so. It may be said that their explanation would not alter the law. No: but it would put a very different face on the matter. And this consideration is connected with the other complaint which we think architects have a right to make; viz.: in regard to the contemptuous spirit in which their claims of this kind are constantly treated in courts of law. A dry report of a law case does not indeed convey this; it is only those who are present in court at cases of this kind who can realise the spirit of ridicule in which English courts will meet claims from architects, the motives and foundation of which the court does not apparently even endeavour to understand. In regard to the Institute, too, over and over again we hear juries told pointedly that they are at liberty to disregard the Institute recommendations as to professional charges. Of course the Institute scale of charges is not law—we all know that; but why are juries almost always encouraged to give no weight to it? Surely they ought to be told the contrary. The Institute of Architects is the representative of a great and honourable profession; its ideas as to a scale of charges represent what the leaders of the profession regard as fair between architect and client, and in that sense they may be considered to be to some extent in the interests of the public also; if they support the architects' claims up to a certain point, they are also a check on exorbitant claims, and have actually, we believe, been appealed to by clients on that ground. Yet they are seldom mentioned in a court of law except to be ridiculed. Why? Surely they form a reasonable presumption on which to assist the judgment of a jury as to what is fair between the parties.

The total misapprehension of judges as to the nature of the architectural profession was even more pointedly illustrated in the appeal case than in the original trial. It seems to be an *idée fixe* with learned judges in this country that an architect is a man who sells drawings, and will not part with them when he has been paid for them. One of the judges in the present case spoke of the drawings as constituting a "chattel," the property in which passed to the building owner when he had paid for it. Another actually cited as a parallel case that of a portrait painted on commission, and said that he supposed if he paid for the portrait it became his property. One learned judge said that he "could not see what interest the architect had in the plans." Well, if the defendants' witnesses had been allowed to give evidence, the judges would perhaps have learned what interest the architect has in them. Then another judge asked "what would happen if the building-owner wished to discover where the drains were laid?" On this point, which was perhaps unexpected, the counsel for the defendant does not seem to have been properly informed, as

he merely replied that he supposed the building-owner could ask the architect to let him inspect the plans. There comes again the mischief of not hearing evidence; if the counsel for the defence had had the opportunity to put that question to one of the witnesses for the defence, the court would have learned that it is the usual custom to supply the building-owner with a plan of the drains. But when the judges on the bench hold and express such really absurd misconceptions as to an architect's work and as to the very *raison d'être* of the drawings, and decline any information which might set the matter in its true light, the case is of course hopeless.

We must add, however, that the wording of the Institute document as to professional charges is most unfortunate, and very much increases the difficulty of dealing with the subject. By separately mentioning, in their Clause 5, the drawings and specification as representing the value of half the architect's commission, they have to all appearance, from the legal point of view, implied that which they do not wish to imply, viz., that the architect is paid for making drawings. We know that this was not the intention, but the wording would convey to most people that it was. But this is not the only consequence of that unfortunate piece of drafting. We do not undertake here, of course, to expound the law, but we are informed on good legal authority that if the Professional Charges codex had merely mentioned 5 per cent. on the cost as the proper architect's commission on a building, making the commission "indivisible," without attempting to divide up his work into drawing and superintendence, the legal result would have been that a client who had given a commission to an architect for a building and then abandoned it would have been liable for the whole amount of the commission. No architect, we should hope, would have wished to take advantage of the law to make the whole charge, but he would have had the right to do so, and no question about drawings need have arisen; so that in the drafting of this unfortunate clause the Institute has really been acting against its own interests and those of the profession.

After the experience of the Court of Appeal, it would no doubt be waste of time and money for the defendant in the case to take it to the House of Lords, under present circumstances at any rate. It now rests with the Institute of Architects to take up the question seriously, and with the determination to see it through, and not to rest until the law is altered. And the first thing for them to do is to thoroughly revise the wording of their document as to professional charges, so as to put it on a more logical footing. After that, they should endeavour to procure legal recognition of it, and get Ebdy *v.* McGowan wiped out. It is that unfortunate precedent, now interpreted in a totally unexpected fashion, which forms the real stumbling-block, and the Institute ought to make up their minds to get it reversed, and not rest till they have done so.

THE WHISTLER EXHIBITION.—It is announced that the Whistler Exhibition at the New Gallery is to remain open till the 15th inst.

ARCHITECTURAL EDUCATION: THE INSTITUTE'S NEW SCHEME.

BY JOHN HONEYMAN, LL.D., R.S.A.

THE architect, like the naval officer, now realises that the course of instruction to qualify for successfully engaging in the profession, which answered its purpose fairly well sixty years ago, is now out-of-date and inadequate. The Admiralty has decreed that a radical change shall be made in the instruction of naval cadets, and that the time up till recently occupied in learning and practising the duties of a seaman in a full-rigged ship shall be turned to better account by substituting instruction in the multifarious duties which may devolve on members of the crew of a modern sailless battleship. The Royal Institute of British Architects has not gone so far. It sees that the time has come when the young architect must acquire some knowledge of several special developments of science and art, but it is apparently unwilling to give up the old-fashioned system of apprenticeship and to devote the time which that necessarily absorbs to better purpose. It seems unable to get rid of the notion that a young man can find time to serve an apprenticeship and concurrently to spend a number of hours daily in acquiring the technical instruction which is now considered indispensable. And so it comes about that in the suggested course of instruction which was explained by Mr. Reginald Blomfield at a meeting of the Institute held on February 20 nothing is said about the substitution of the proposed course for an apprenticeship, but it is assumed that so much of the apprenticeship remains that an architect would be justified in asking the parents or guardians of a youth who came to him for instruction for a premium.

It is not very easy to see how this sort of apprenticeship is to be carried on concurrently with the other instruction, as there is a recommendation that only a part of one year and the whole of another is to be the length of the student's service in an architect's office. The proposed scheme is much in advance of anything that has been hitherto suggested. Barring this attempted retention of an apprenticeship, it is a commonsense adaptation of the course of instruction to the altered circumstances. An apprenticeship lasting five years was not too prolonged to serve its purpose, but it is absurd to say that this can, with any practical result, be condensed into a period of a year and a half. At the commencement of this proposed apprenticeship the pupil has practically become qualified to act as a draughtsman without the aid of the architectural master at all. He is—if he has availed himself of the tuition which he is recommended to obtain during the preceding three years—very much better qualified to be regarded as a draughtsman than anyone who, under the old system, had served an apprenticeship of five years. To suggest that, qualified in this way, he is only beginning his apprenticeship, either of one or two years, is ridiculous, and certainly shows little appreciation of the value of the course of study recommended; and to suggest that, in the circumstances, parents and guardians might reasonably expect some modification of the usual premiums is simply amusing. There is no longer any excuse for asking or accepting a premium, as there is no longer an apprenticeship. That method of teaching has been superseded by another, which the Education Board of the Institute and the majority of architects believe to be superior. But the collateral consequences of the substitution must be frankly accepted, and one of these clearly is the abolition of apprenticeship and the placing of the practising architect exactly in the same relation to the student as the teacher of building construction or any of the other teachers under whom he studies.

Suppose the course extends over five years. During the first three and a half years the student has to pay his instructors, and it is quite right that during part of the fourth and the whole of the fifth he should do the same. He should pay the architect who receives him into his office the value of the instruction he gets, and, as an accomplished draughtsman, he can do this, and give this last teacher a much higher rate of remuneration than he has given any of the others, simply by serving him gratuitously for a year and a half.

Under the old system an apprentice was worse than useless for several years, and his period of usefulness hardly made up for this, and hence there was some excuse for requiring a premium to make up the deficiency; but there never was, and hereafter there never can be, any excuse for the Pecksniffian practice—still not uncommon—of an architect taking half a dozen pupils or more at a time, and premiums with each of them, to do his work gratuitously.

The result of the change in the system of education suggested by the Institute, if the true position of the architect is recognised, will be that every architect will be obliged to employ a sufficient staff to do his work without depending on apprentices.

The Institute's wise recommendation that during the first two years of the course the student should not serve in an office is one which anyone who takes a real interest in technical education must readily endorse. In this respect the present state of matters is about as bad as can be. In regard to architecture, at all events, ever since the Institute decreed that qualifying examinations were to be compulsory, there has been an attempt to combine two systems which are irreconcilable, resulting in a great waste of energy. The figment of a five years' apprenticeship is maintained, the student spending his valuable time in the office from 9 till 5.30 or 6 in what any intelligent message boy would learn to do in a few months: copying letters, filing letters and catalogues, going messages, holding the ring end of measuring tapes, tracing plans, helping to print tracings, mounting sheets, printing titles, and making himself generally useful, even to the carrying of his master's portmanteau to the station! * All these things, no doubt, are more easily learned at sixteen than at twenty, but as they are not accompanied by even a pretence of tuition on the part of the master, it would be interesting to

* We presume Mr. Honeyman has chapter and verse, though we certainly never knew of such an incident.—ED.

know what anyone in favour of the present system has to say about the relative value of time spent in that way and the same time spent with competent teachers in the School of Art and the lecture-rooms of a technical college. It is high time we understood that one or other must be given up, and that the hours of obligatory work must be restricted to a reasonable number each day. At present, a young man is expected to do all the work of an apprentice and at the same time all the work to qualify him for the Institute's examinations. Attempting to do this, the usual daily routine is something like this: He gets up at 5.30 to do some work for his class, which has to be done at home; he breakfasts hurriedly at 8, and goes off to his office for the day, where he remains (except during lunch) till half-past five; then, to get to his class at college, he must dine hurriedly at 6 and go off immediately, not to return till ten—sometimes later. He has absolutely no leisure to cultivate science, art, or literature, or even social frivolities, which would only do him good—it has all been *wasted* during the day. In my opinion, the daily time to be devoted to obligatory work should not exceed nine hours during the whole of the student's prescribed course. The earnest student will devote more time than that to study, but he should not be obliged to do so. He has many things to learn before he is twenty-one besides his profession. So has every man; but we seniors seem to have forgotten the fact. Let us, then, be content to do one thing at a time and to do it well, even if it should add another year to the full course.

I shall only refer at present to one other matter, regarding which we at present greatly err, namely, as to the time the student should have at his own disposal as holiday. The student of the present day, as I have described him, notwithstanding his hard winter's work, gets—besides the usual public holidays—only one fortnight in the twelve months! He works all the year without getting any remuneration, and is thought to be sufficiently favoured if he gets one fortnight to himself. Now in no profession can a lengthened holiday be turned to better account as a means of education than in architecture. The student ought to have not only enough of time for recreation, but also for sketching and measuring and visiting interesting localities; and the higher he rises in his course of study the more time should he get for engaging in work of this kind, as he is then better qualified to make good use of his opportunities than at an earlier stage. I, therefore, venture to recommend that while a student in his first year should have a month, the student in his last year (in an architect's office) should have two, a graduated scale between the two extremes being applicable to each intervening stage.

No doubt it will be said that under such conditions as I have sketched young men would waste their time with cricket, golf, or drill; but if the student applies himself diligently to his work nine hours daily, he is quite welcome to devote himself to these and other pastimes in moderation, and will be all the better man and architect if he does so. The risk with any man likely to rise in his profession is that he will work too hard. As it has ever been, and must continue even in these days of higher education, the issue will depend on the natural endowments and conduct of the individual. The best and most abundant educational advantages will never convert a fool into an architect worthy of the name.

In the discussion which followed the reading of Mr. Blomfield's paper, to which reference has been made, there does not seem to have been anything said about the Institute's examinations, so that the qualifications for Associateship would remain unchanged. The scheme suggested was, of course, intended for the whole profession, leaving different associations free to make what rules they chose for admission to their membership; which is as it should be. But it might have been well had the details of the course been a little more filled up by some reference to what the student should do during the first and second summers of his course, when classes are discontinued. I will venture to make a suggestion on this point. During the first summer I think the very best thing the student could do would be to go into the counting-house of a merchant or accountant, to get some idea of the advantages of punctuality and orderliness—the immense importance of the economy of time and trouble which results from having "a place for everything and everything in its place." This is a branch of the architect's instruction which has been sadly neglected, and ought to be embraced in any complete course of instruction. During the second summer he should go into a surveyor's office, so as to get some insight into the mysteries of quantity surveying and specifications. Lastly, during the fourth year—summer and winter—the student's time should be equally divided (keeping the nine hours' limit constantly in view) between work in an office and the higher artistic branches of his academical course. He should give four and a half hours, and no more, to office work, and the same time (and as much more as he pleases) to the other. It will no doubt be objected that a practising architect would not take a draughtsman into his employment who would only work half time, but two things are to be remembered here—first, that the architect has in his employment a sufficient staff to do his work without the aid of pupils; and, second, that the student does not ask employment as a draughtsman, but as a pupil willing to pay for his instruction. He is—or should be, if he is ever to be—an accomplished draughtsman, and giving his half-time services to an architect for nothing he actually pays three or four times higher fees than he has paid any of his other instructors.

During the fifth year the young man should devote his whole time to office work, still to some extent in the capacity of pupil, but to so small an extent that, in common fairness, he ought to receive a restricted salary in proportion to his worth.

This is all so inconsistent with the established order of things—which people are prone to forget has, by their own act, been overturned—that it will very likely be said. "What architect in large practice, besieged by importunate would-be improvers, would take young men into his office on such terms as these?" If they really have the interest in the education of those who are to fill their places by-and-by which they profess to have, they will be glad to do so; and if not, I can assure my young friends that it will be of very little consequence to them, for they are much more likely to learn the routine work of an office, and the duties which will devolve upon them when they start for themselves, in a small than in a large establishment. I would recommend, preferably, an office where not more than one draughtsman is kept, and where they will be in constant communication with the head. A youth will get very little insight into such matters in an office where a secretary, book-keeper, typist, porter, etc., are all employed. The beginner must learn at first to be an architect and all these besides, and he will learn that best from one who has successfully accomplished the task himself. But it is of no advantage to a young man that he should see and be influenced by the work done in the office of a great master. On the contrary, it is the worst thing possible for him as an artist to have his taste twisted in any direction. There is no endowment he possesses which is so precious as originality. If as an artist he would produce any noble work, if he would throughout the whole of his career realise the inspiring truth of the adage, *Labor ipse voluptas*, let him rely upon himself alone and do his best—let him cherish originality, breadth, and truth.]

NOTES.

Hope for Philæ.

THERE seems to be a possibility that, after all, the decision of the Egyptian Government to raise the level of the Assuan dam may not be carried into effect. As the result of an inspection extending over some fourteen days, Sir Benjamin Baker has recommended that a masonry apron should be built in front of the downstream face of the dam to prevent the serious scouring away of the river bed by the large volumes of water passing through the sluices. The completion of this work will occupy quite two years, and until it has been done it would be extremely inadvisable to attempt the raising of the dam. If this were all, we should have no hope of anything but a postponement of an untoward event. But it happens that since the elevation of the masonry was decided to be quite feasible, mathematicians have evolved a new theory—or more correctly have developed an existing theory—as to the stresses upon masonry dams, and it is possible that the application of this to the Assuan dam may show that it would be impossible to raise the water level in the reservoir without unduly reducing the large factor of safety essential in the case of so important a structure. A very ample margin was allowed in the final designs, but if investigation should prove that the latest theory is applicable to this dam, the actual factor of safety will evidently be such as to preclude the storage of more water at Assuan. In that event, it is morally certain that a second reservoir will be established upon some other site,

and that Philæ will be spared further submersion.

A Welcome Postal Reform.

THE partial removal of the final barrier of any importance to an Imperial Penny Post deserves passing notice. From April 1 the postage on ½ oz. letters for Australia will be reduced from 2½d. to 1d., and Mr. Henniker Heaton and his fellow reformers will rejoice. Our Commonwealth friends themselves, however, only get a reduction of a halfpenny on letters sent to the Mother Country, and it will be interesting to see how long it will take them to fall in line with their New Zealand brethren, and come down to the popular penny. They will hardly rest content to pay twice as much as we do for the same service, in spite of the loss of revenue which a further reduction would involve. The thin end of the wedge was inserted in 1897-8, and it will probably not be long before it is finally driven home, and Imperial Penny Postage becomes an accomplished fact—marred by no exceptions.

An Absurd Proposal.

MR. FREDERIC HARRISON, one of the class of brilliant literary men who think they understand everything, has proposed in a letter in the *Westminster Gazette* to find a house for the London County Council by the simple expedient of ceding to them Somerset House, with the suggestion that "an adequate hall could be raised in the great square." That a building for the convenient carrying on of the work of the County Council would have to be specially and carefully planned for that purpose is a detail that evidently does not occur to the literary mind; but it might have been supposed that any man who professed to take an interest in art would have seen the absurdity of the proposal to ruin the effect of the quadrangle of Somerset House by erecting a large building in the centre of it. And what about light and ventilation?

Coutts and Co.'s (old) Bank, Strand.

HAVING acquired the leasehold interest in Nos. 56-60, Strand, for a premium of 8,000*l.* and a net rental of 2,485*l.* per annum, the London County Council will adapt the premises for the purposes of their staff, and rearrange the ground floor for conversion into shops. The north portion of the block stands on the site of the Burse of Britain, commonly known as the New Exchange, built in 1608-9 by Lord Salisbury on the site of the stabling and some outhouses of the "inn" of the Bishops of Durham. In 1761 Thomas Coutts became a partner of his brother James, whom George Campbell, goldsmith and banker, had taken into partnership at his banking-house, by the sign of the Three Crowns, in the Strand. Robert and James Adam rebuilt the banking-house (with a subway to the strong-rooms on the south side of William-street, Adelphi), which Thomas Coutts occupied as his residence during many years before his decease in 1822. At the time of the building of the Adelphi he stipulated with Robert Adam for the diminished height of a house on the north side of John-street and for the laying-out of Robert-street in order that he might continue to enjoy the prospect from his drawing-room across the river and the view beyond. In 1799 he obtained an Act "to make a communication between his buildings on the opposite sides of William-street . . . by a covered passage to be built over the said street." On E. Waters's survey of the parish of St. Martin-in-the-fields, 1799, is plotted the Baptist Chapel at the angle, south-east, of William and James streets. That building, still known as "the chapel," was incorporated in the banking-house some years ago, the congregation migrating to Hackney. In 1838-9 some alterations and improvements were carried out by Thomas Hopper for the firm who, in June, 1892, were reconstituted as Coutts & Co.

Kirkstead Chapel, Lincolnshire.

AN appeal is made to the public on behalf of the chapel at Kirkstead, which formed the Capella Extra Portas of the Cistercian Abbey, near Tattershall, and in that respect is one of the few examples after its kind that now remain in our country. It appears that the chapel, which is extra-parochial and a donative, belongs to the vicar of Appleby Rectory in Leicestershire, who executed some repairs a few years ago, and, it is stated, is willing to effect a sale of the building with a view to its preservation provided the purchase extends to the entire estate of about 1,500 acres of fen land, together with its farms, cottages, and other buildings. The Abbey, dedicated to St. Mary the Virgin, was founded at Kirkstead in the earlier half of the XIIth century by Hugh Fitz-Eudo, surnamed le Breton, and subsequently became the parish church of the village, constituting a "peculiar" in the private possession of the owners of the estate. The Capella Extra Portas was built, it is believed, by Sir Hugh de Tatshall in or about 1140. It measures 42½ ft. by 19½ ft., and consists of three bays; the weight of the vaulted roof threatens the walls with destruction unless measures are promptly taken to avert disaster.

The Carfax Gallery.

MESSRS. CARFAX & Co. have opened their new premises at 20, Bury-street, St. James's (which are got up in a very æsthetic style), with an exhibition of water-colours by Mr. Sargent. These are really only sketches, in a very broad and rough manner—an artist's memoranda, they might be called; but they are interesting both from their remarkable qualities of colour and for the power which they show of rapidly seizing the momentary action of a figure, in those in which figures are introduced. We see this in "The Grand Canal" (24), where the roughly-sketched figure of the gondolier is in such energetic action; in the groups of Spanish soldiers (44, 45), and in the manner in which the forward action of the Colleoni statue is indicated (6). Most of them, however, are sketches of buildings, chiefly in and about Venice, and these are full of colour and light. There is also exhibited a life-size portrait of a lady, which looks as if the size of the head and the length of the nose had been purposely exaggerated in a spirit of mischief; it is not in any respect a work to add to the painter's reputation. His remarkable nude study of a bronzed Egyptian girl with her back to the spectator (of which we have seen more than one reproduction in art publications) is very fine, but too large for the room. The small gallery is very well lighted, but its dimensions only render it suitable for the exhibition of small works; a life-size figure is out of scale there.

The Modern Gallery.

THE series of "Water-colours of England and South Wales," by Mr. Arthur Ellis, now on view at the Modern Gallery, is to our mind the most satisfying collection of works which we have seen there since the gallery re-opened at its new premises. They are but small drawings, but they are in a fine and true water-colour style and show real feeling for the effect and the sentiment of landscape. "Stormy Sky, St. David's"; "Penrice on the Hill"; "Blown Sand, Oxwich Bay"; and "St. David's" (Nos. 3 to 6) are all fine in colour and effect. There is a larger and powerfully treated view of "Durham" (29), red in the western sunlight above its foreground of foliage; "The Valley of the Jed Water," next to it, is also very good; and a very slightly executed sketch, "On the Sussex Downs" (31), is one of the best things in the collection for truth of colour and effect.

Society of British Artists.

THE Exhibition of the Society of British Artists, at the Gallery in Suffolk-street, is a better one than some that we have seen; there is no doubt a great deal of uninteresting and mediocre work, but there is a larger number than usual of pictures which one can look at with some interest. Among these Mr. Muirhead's "Clearing: after a Storm on the French Frontier" (17), though rather too dark and rather too much like an imitation of an older school of painting, is nevertheless powerful; and Mr. Foottet, in his impressionist picture "The Barge, Twilight" (22) has chosen a subject that suits that style of treatment—much more so than his Pastoral in another room, which looks like a picture executed in worsted work. "An Idyll—Twilight" (27), by Mr. Palin, merits notice, though it reminds one that Fantin-Latour and Henner have done the same thing much better. Mr. Val Davis's small picture "The End of the Village" (65) is a really pleasing though unassuming little landscape; also Mrs. Merritt's "The Down" (77). Mr. Rex Vicat Cole's large woodland landscape "Wharfedale Woodlands" (84), which is not unassuming but rather pretentious, is nevertheless an effort at a difficult effect treated with considerable power. In Mr. Sidney Lee's "The Bridge" (193) we can trace, but not unpleasantly, the influence of M. Le Sidaner. The water-colours, as usual at this exhibition, maintain a higher general level than the oils, and include a good many pleasing works.

Drawings by Mr. Corbould.

THE collection of drawings—mostly black and white but some in colour—which is on view at the Quest Gallery, in New Bond-street, belongs to the class which are called "exhibitions of sporting subjects," and one knows that under that title one must

not look for anything expressing the serious or poetic side of art. But it is an exhibition which gives one the kind of satisfaction arising from work which is thoroughly good of its kind. Mr. Corbould knows the horse and the huntsman and the hunting lady in every line, and perhaps the horse is the most interesting of the three. The admirable way in which horses are drawn from every point of view, and the truth with which their action is indicated, are really remarkable, and the designs are in this sense full of variety. We may call attention especially to the excellent drawing, in the small oil-painting numbered 9, of the foal capering and foreshortened. There is of course a great deal of humour in the subjects of many of the drawings, and the incidents they are supposed to illustrate, but this is something beside and independent of the artistic element. There are others in which the humour is in the drawing itself and not in the title; witness "Selling a Horse" (24); the expression of the dealer is delightful.

Mr. James's Flower-Paintings.

AT the Dutch Gallery in Grafton-street there is a collection of paintings of flowers by Mr. Francis E. James, which show a great deal of power and brilliancy in colour, and effective grouping of flowers in the form of Still Life pictures. It is, however, colour and arrangement only, not much of the texture or structure being indicated. This is particularly observable in the drawing of "Nasturtiums" (49). The special character of the nasturtium leaf is derived from the peculiar construction of the circular leaf with a central point out of the centre so to speak (like the focus of an ellipse), and the ribs which form the leaf structure radiating from it. All this is omitted in the drawing, where the leaf shows only as a green circle. That is hardly the way to paint a leaf—to give its colour only and leave out the most essential point in its design.

Mr. Dunthorne's Gallery.

AT Mr. Dunthorne's gallery in Vigo-street there is a collection of "Studies of Birds in Water-colour," by Mr. Geo. E. Lodge, which is well worth seeing. They are simply paintings of birds, with very slight indications of landscape; but the birds are finished with the greatest brilliancy and delicacy, and form quite an ornithological study. Among those that are particularly worth mention are that of a "Sea-Eagle" (1) represented flying high in the air; a "Golden Eagle" (6) that "grasps the crag with crooked hands"; "The Sparrow Hawk" (17); "Sea-Eagles" (37), with their wings spread out to dry; "Waxwings" (40); and "Wigeon" (52—so in the catalogue, but we should say "widgeon" is the correct spelling). The plumage the of nearest bird in this drawing is an admirable bit of minute finish, and the whole collection shows most conscientious workmanship.

POORHOUSE EXTENSION, DUNFERMLINE.—Building operations will shortly be commenced at the extensions to the Combination Poorhouse at Dunfermline. The additions will cost, it is estimated, between 8,000*l.* and 9,000*l.* They consist principally of two new blocks to the east and north of the present buildings. Mr. Muirhead, architect, Dunfermline, has prepared the plans.

THE AUTOMOBILE EXHIBITION, ROYAL AGRICULTURAL HALL.

REMEMBERING that we have recently had two other motor vehicle shows, the promoters of the annual Automobile Exhibition held last week at the Agricultural Hall have reason to be satisfied with the results attained. Indeed, in the fact that the hall was well filled in almost every part we find one more proof of the substantial progress made by the motor industry in Great Britain.

Some of the leading makers were not represented, owing to the opposition offered by the Society of Motor Manufacturers and Traders to the holding of more than one annual exhibition of the kind in or near the Metropolis, but the exhibits were sufficiently numerous and varied to give visitors an excellent idea of the vehicles and accessories now being made in this country. In the following notes we deal chiefly with heavy motor vans, some of which were to be found in the great hall and the remainder in the adjoining minor hall.

Passing along the northern wall of the building we came first to the stand of the St. Pancras Ironwork Co., who exhibited a 5-ton steam waggon, the chief feature of which is the adoption of what is generally known as the "three-point" contact system, permitting the wheels at one side to pass successively over an obstacle without causing the severe twisting strain that happens in the case of rigidly-built frames. Closely adjoining was a 4-ton steam lorry made by the Thames Ironworks Shipbuilding and Engineering Co. at their Greenwich works. This lorry is of the present year's design, and is provided with a locomotive type boiler and a compound horizontal self-oiling engine entirely inclosed. The same firm also showed a petrol delivery van with two-cylinder motor and solid rubber-tyred wheels. Messrs. John Stewart & Son, of Blackwall Ironworks, exhibited a steam lorry which can be converted into a waggon by the addition of a suitable body, and is capable of drawing two tons on a trailer in addition to six tons on the platform. The special features of this design are exceptional simplicity and an ingenious elastic spring drive, neutralising the shocks on the gearing, engine, and frame generally. The boiler is of the vertical fire tube type, working at 200 lb. per sq. in., and motive power is provided by a long stroke engine of the compound link motion type, but high pressure steam can be admitted to both cylinders when required for starting purposes and hill climbing. All the foregoing vehicles are of quite recent introduction, and, being made in London, should commend themselves for use in the Metropolis, owing to the ready accessibility of the makers' works for repairs or renewals. A very handy little traction was exhibited on the next stand by Messrs. W. Foster & Co., of Lincoln. For many purposes a tractor of this kind should be found extremely useful. The example now in question is capable of hauling loads up to eight tons at a speed not exceeding six miles an hour. It is fitted with a special arrangement of water tanks to enable long journeys to be undertaken, and any type of existing vehicle can be attached as a trailer. The machine is also fitted with a drum and rope for use as a portable winding engine. The Bristol Waggon and Carriage Works Co. had on view a 5-ton steam waggon with tipping body, and fitted with horizontal compound reversing engine and tubular boiler.

Along the southern wall of the building a few other vehicles of the same class were found worthy of inspection. Dougill's Engineering Co., of Leeds, showed one of their latest pattern 2-ton "Frick" petrol lorries fitted with double friction transmission, giving a variable gear in either direction from one and a half to twelve miles an hour, the change speed gear being operated by means of a hand wheel on the steering pillar. The same firm also exhibited a light delivery van of 8 cwt. capacity, with driving gear similar to that on the lorry.

Messrs. Scammell & Nephew, whose speciality is the building of bodies for motor waggons, omnibuses, and cars, included among their exhibit a trailer capable of carrying a load of 4 tons, and which, being fitted with movable sides, is suitable for a great variety of purposes. Messrs. R. Garrett & Sons, of Leiston Works, Suffolk, presented an example of their 4-ton steam lorry, very similar in outward appearance to other vehicles of the same general type, but combining one or two novel features. The first of these is a "controller cylinder," for the piston of which three distinct positions are indicated on the operating lever. In the first position high-pressure steam is admitted directly into the low-pressure cylinder, at the same time opening a way from the high-pressure cylinder direct to the exhaust pipe. This position is useful when extra power is required temporarily. The second is the normal working position, and steam then passes from the high-pressure to the low-pressure cylinder. In the third position steam is admitted only to the high-pressure cylinder, none entering the low-pressure cylinder. This mode of working is useful in dense traffic, as the engine can be stopped immediately, thus adding materially to the control of the lorry.

Next entering the minor hall, we found a varied but not a very large selection of heavy motor vehicles. The Lancashire Steam Motor Co., of Leyland, exhibited a 5-ton brewer's dray and trailer of their standard type and a Crossley-Leyland omnibus which has been built for use between Kew Bridge and Surbiton. Messrs. Fodens, of Sandbach, were represented by two 5-ton steam waggons of their well-known standard design. In this type of waggon a horizontal multitubular boiler forms the front part of the framework, and the engine is placed on top of the boiler. As the general arrangement is very similar to that of an ordinary traction engine, any driver accustomed to such machines can readily handle the waggon. On the next stand we had the "Manchester" steam waggon, patented by Dr. Brightmore, M.Inst.C.E., which embodies the principles of traction that have been applied for centuries to horse-drawn vehicles. In the "Brightmore" system the motor drives the front wheels, the fore-carriage is connected to the platform by a ball-and-socket joint, and is kept parallel by a roller moving in a segmental channel. This method of connexion allows the front axle to take any angle relative to the back axle, either in the horizontal or the vertical plane, thus permitting the vehicle to accommodate itself to any unevenness of the ground without strain on the springs. Steering is effected by means of a wheel which applies the steering brake on one side or the other of the differential gear, thus causing the road wheel on the opposite side to revolve more quickly than its fellow and to turn the forecarriage to the extent desired. Any deviation of direction when steering is not taking place is prevented by means of a device which ensures the uniform revolution of the front wheels. Finally, the load is carried equally by each of the four wheels.

Messrs. F. G. Pickering & Co., of Berwick-on-Tweed, exhibited a carefully-designed 2-ton petrol lorry, with 24-brake horse-power four-cylinder motor, and examples of the Pickering twin spoke wheel suitable for any class of vehicle. The object of the twin spoke is to divide the lateral strain so that each side takes up its own share, thus rendering the wheel far stronger than one of the ordinary type and providing against the effects of twisting strain or impact. The "Londonderry" steam waggon, built at the engineering works of Lord Londonderry at Seaham Harbour, was a noteworthy exhibit. The vehicle on view was one of the type which accomplished the record of carrying a 5-ton load from Seaham to London in fifty-four hours, only stopping to pick up water on the journey of 280 miles.

Messrs. J. Robertson & Son, of Fleetwood, exhibited a 5-ton hydraulic tip waggon fitted with a special control valve. Motive power for traction is provided by a steam engine of the usual kind supplied from a Robertson patent boiler, a specimen of which, with the outer casing removed, was exhibited on the same stand. Mann's Steam Cart and Waggon Co., of Hunslet, are well known as pioneers in heavy motor traction, and exhibited two waggons, of 2 tons and 5 tons respectively, embodying their latest ideas. In these the engines and fast-running gear are enclosed in an oil bath, and driving is effected entirely by spur gearing. The boiler of each waggon is of the locomotive type fired from the side so as to save space, and coke bunkers are fitted round the front. Among other exhibitors of steam waggons were Messrs. E. S. Hindley & Sons, The Hercules Motor Waggon Co., of Manchester; Messrs. Jesse Ellis & Co., of Maidstone; The Yorkshire Steam Waggon Co., of Hunslet; Messrs. Stagg & Robson, of Selby; Messrs. Wallis & Steevens, of Basingstoke; and Messrs. Savage Brothers, of King's Lynn. Although there was nothing in these exhibits requiring special mention, all of them are strong, serviceable machines well worth examination by intending purchasers. Petrol lorries were further represented by

the vehicles of the N.A.G. (Neue Automobil Gesellschaft) Automobile Co. of Great Britain and Ireland, and Messrs. Moss & Woodd, the stand of the latter firm also including an "Orion" motor omnibus.

The bulk of the exhibits in the great hall was made up, as might be expected, of ordinary motor cars, but among these were several omnibuses and delivery vans which deserve a few words. Mr. Theo Masui exhibited a "Germain" double-deck omnibus of 16-22 horse-power; the Maudslay Motor Co., of Coventry, in addition to a handsome wagonette omnibus, showed a motor omnibus of the type adopted for local road services by the Great Western Railway Company, and the Motor Car Emporium a serviceable-looking double-deck omnibus to carry thirty-two to thirty-six passengers, and on the same stand a 1½-ton delivery van and a small petrol lorry. As on previous occasions, the makers of internal combustion engines such as the Crossley, the Stockport, and the National were in evidence in the hall, and makers of motor accessories had numerous exhibits in the arcade and galleries as well as in the hall itself.

Although coming second in order of importance to the show at Olympia, the recent exhibition may be characterised as a distinct success, and one of its most interesting features was to be found in the various exhibits of waggons and lorries adapted to industrial and municipal purposes.

THE ARCHITECTURAL ASSOCIATION.

AN ordinary fortnightly meeting of the Architectural Association was held on Friday last week at No. 18, Tufton-street, Westminster, S.W., Mr. E. Guy Dawber, President, in the chair.

The minutes were read and confirmed, and the following gentlemen were elected members, *i.e.*, Messrs. S. Selwyn, Reigate; J. C. Cavanagh, London; and P. St. Clair Christie, Hampstead, N.W.

New Premises Fund.

The Chairman said he had pleasure in announcing the following further donations to the New Premises Fund, *i.e*:—

	£	s.	d.
The Carpenters' Co.	26	5	0
F. and H. Higgs	25	0	0
Chas. Smith & Co., Ltd.	10	10	0
Bath Stone Firms, Ltd.	5	5	0
R. C. Murray	5	5	0
Nottingham Archl. Society	5	5	0
G. P. Bankart	4	4	0
Holliday & Greenwood	3	3	0
Geoffry Lucas	2	12	6
T. J. Wetherall	2	12	6
J. B. Chubb	1	1	0
Ewart & Sons, Ltd.	1	1	0
W. H. Hewish	1	1	0
E. E. Lofting	1	1	0
H. P. G. Maule	1	1	0
Maurice E. Webb	1	1	0
T. H. Russell	1	1	0
C. E. Varndell	1	1	0
Sundry small donations	7	7	0
Total	£105	17	0

Deceased Members.

The President said that since their last meeting they had lost the oldest member of the Association, *i.e.*, Mr. C. B. Arding, who joined the Architectural Association in 1848; and he moved a vote of condolence to the family of the deceased. The Association was represented at the funeral by the secretary, Mr. Driver. The vote was agreed to in silence, as also was a similar vote to the family of the late H. D. Aubrey, a promising member of the Evening school.

On the motion of Mr. H. Tanner, jun. (hon. secretary), a vote of thanks was accorded to Mr. Paul Waterhouse for kindly allowing a party of members to visit University Hospital Extension on the 11th inst.

Mr. Louis Ambler (hon. secretary) announced the donation of a reading-desk from Mr. Henry Tanner, jun. He also announced the following donations to the Library: "Estates Gazette" (6 vols.) and "Land Agents' Record" (12 vols.), presented by Mr. Sydney Perks; "Law of Easements," by T. T. Blyth, presented by the publishers (Sweet & Maxwell); "St. Louis Exhibition," by H. Phillips Fletcher, presented by Mr. B. T. Batsford; a photo of the A.A. excursion group, 1904, presented by Mr. W. Wonnacott. Thanks were accorded to the donors.

The President then read the Committee's nominations of officers for Session 1905-06, which was printed in our issue for March 18. He announced that Mr. Walter Cave had since been nominated as a Vice-President, and in those circumstances his name would be removed from the list of nominations for the Committee.

The Chairman said that the following gentlemen had been selected to act as scrutineers, *i.e.*, Messrs. T. W. Watkins, W. I. Travers, J. W. Denington, and M. S. Hack.

The Chairman also announced that a special general meeting will he held on Friday, April 7, at 7.15 p.m., to discuss the proposal to substitute the word "council" for "committee" wherever it occurs in the by-laws.

Sketch Plans and Working Drawings.

Mr. A. Needham Wilson then read the following paper:—

In asking an architect to read a paper on such a subject as this I venture to think a mistake has been made. The subject should have been dealt with in two separate papers and from the point of view of the persons most interested—"Sketch Plans, by a Client," and "Working Drawings, by a Builder"—then I think we could have looked forward to a really interesting evening, for I take it that our committee had no intention of arranging for a dissertation on the mere history and development of draughtsmanship—which has been frequently done—but wished to consider the subject generally. Personally, I hardly think an architect best qualified to lay such a subject before architects, and any attempt at criticism would be altogether beside the mark. Though general broad rules govern our procedure in these matters, there is happily so much individuality shown by most practising architects that no one with the smallest sense of decency can well say, "So and so is the right way to prepare working drawings, and such and such is the wrong way." In an open meeting like this, too, it would be impossible to lay down rules for the guidance of students who are probably being taught better ones elsewhere—rules, too, which might be contradictory, and only lead to confusion. Given a proper basis upon which to work, I hold that it is better to allow every student to develop along the line of his individual fancy rather than he should be cramped by stereotyped methods or cut-and-dried ideas, and I fancy that this wise latitude is being reflected in what I may term the "broad-mindedness" which I think I can see in our architecture of to-day.

Therefore, I shall only attempt to deal with my subject on broad lines, and if I talk round it a little bit, and utter a few well-worn platitudes, at least I shall hope to avoid being dogmattic.

The practice of architecture involves many trials, many worries, and many anxieties; but one of its compensations certainly is in the preparation of sketch plans, and, perhaps in a lesser degree, working drawings. And yet even these have their drawbacks. When those first enthusiastic conceptions so brilliantly drawn come back to us mutilated beyond recognition, and we are bidden to carry out the building from the poor remains, then we feel this is a hollow world.

If we could not clothe the dry bones of commonplace ideas—other people's ideas and not ours—with some architectural flesh in the working drawings, we should find but cold comfort in the bald satisfaction of a client.

It is astonishing how great a sense of gratification may be derived from a good drawing. The dullest routine work becomes interesting. Even a detail of a riveted girder can be made attractive in skilful hands. And we can redeem much that is dull and monotonous in our labour by the laudable pride evidenced in the attempt to do adequate justice to the architecture by the drawing. That is how I look at it. How the client looks at it is another matter. How the builder looks at it I soon find out, if my enthusiasm has led me astray from the path of working-drawing veracity.

The consideration of the means by which an architect translates his ideas and conceptions into hard matter-of-fact bricks and mortar must always be of interest to architects if not to anyone else. Working drawings scarcely appeal to the Man in the street. He can only judge the architect by his works as evidenced by actual buildings, and too often any appreciation is limited to their utility. Should such utility fit in with the usage of the Man in the street he rarely casts a thought to the process by which the building was evolved—scarcely to the building itself. To him it is sufficient that it is there, it grew spontaneously, or developed under the hands of the builder by some intuitive perception of the requirements of the Man in the street.

If he be a particularly well-informed Man, he will know that some architect has been employed, and if he casts a thought to him at all, it will be only to revile him. Occasionally the Man dabbles in building, and, becoming daring, talks to his nearest friend in an airy way about employing an architect, and in the tone that he would of a strange order of beings of whom he has heard but with whom he has never come in contact. The friend is impressed, but warns the Man that he has heard that architects demand 5 per cent. for doing nothing at all, and he, becoming alarmed, straightway goes to a builder. How many outside our profession have the smallest conception of the process which must be gone through to enable the architect to erect his building? Even those who are best informed have an idea that an architect does nothing more than spend a pleasant hour or two occasionally in toying with a pencil and colours and producing pretty sketch plans which, when approved, are handed over to the clever builder, who turns the thing into a structural success. The ring of the trowel, the hammer's thud, the crisp sound of sawing are realities, something tangible, whereas the means by which the architect achieves his end are a silent, unseen force, and therefore unknown. The Man neither knows nor appreciates the concentration of thought, the focussing of years of hard work or arduous training that may be incorporated in the dashing sketch, the few clever lines or splashes of colour which show him his building as it is to be, or rather as the architect thinks it ought to be, furnished with ideal surroundings which do not exist and never will exist. It never strikes him that those slight sketch plans, in which everything is so perfectly arranged, are the result of much anxious thought and expenditure of midnight oil. He never dreams that the ingenious arrangements which fit together so well are integral parts of a harmonious whole, and probably indulges in some cheeseparing economies which upset the balance of the architect's scheme. It is nothing to him that these features he wipes out so light-heartedly have cost hours of patient labour and thought, and that the architect must again draw together his scheme and endeavour to cast over the mutilated remains the glamour of his individuality. But if this be so of the sketch plans, which he necessarily must see, what of the working drawings which he only sees when he signs the contract? I am not grumbling, or even speaking with a sense of bitterness, unless it be against the idea that we earn our money too easily. The preparation of preliminary sketches is its own compensation, and no architect worth the name begrudges the time or labour expended in expressing his ideal of the problem immediately before him; and reaps his reward in endeavouring to do it justice with pencil and colour. According to his success in translating it into matter-of-fact building materials is that reward increased, and his delight at success cannot be measured by pounds, shillings, and pence. Other people, even his professional brethren, may consider his effort a blot on the fair face of the earth, something to frighten intractible children with, but to him it remains a thing of joy, until he becomes discontented with it by doing something better. He is an artist for art's sake, he wishes to express the beautiful, and cannot be bound by sordid considerations of 5 per cent. The painter expresses his conceptions with his pigments and brushes on his canvas in the best manner he can, according to his artistic capabilities, and the architect similarly expresses his, but with different materials, each being actuated by the love of the beautiful. The one has completed his work, and appeals to a wide circle of admirers or critics. The other has not completed his work, and has appealed to an infinitely narrower circle, and must go through the procedure of working drawings, specification, quantities, details, superintendence, and settlement of accounts (to say nothing of "extras") before he can appeal to the public. The work of the painter enlists the sympathies of the public far more than the work of the architect, and the same public would little appreciate the artistic merits of a set of drawings, even if "sketch plans." The expression of the painter's ideal on canvas is fostered to a large degree. The expression of the architect's ideal upon paper is relegated to a little back room at the Royal Academy, probably to provide a secluded nook from the "madding crowd." The public will pay a shilling to see the painter's work, but they would not flock to see the architect's work, even if they were admitted free. And yet the architect plods on, taking his delight in his obscure "sketch plans," and sends his dashing sketch to his client, not wholly actuated by sordid motives in so doing, but anxious to express his ideal in as favourable a manner as he can for the very love of it.

What if he does idealise over much? What if he frames his building (on paper) in an imaginary setting? What if the skilfully blotted-in mass of redundant foliage only exists on paper, and the lovely formal garden with yew hedges will yield to serpentine walks and a tennis lawn? That is the fault of the client who chose the site, not of the architect who designed the building; and if the client is eventually disappointed because the actual structure looks so different from the clever sketch, well, it cannot be helped. The setting ought to have been there, that's all, and the architect has extracted a considerable amount of compensatory pleasure from his sketch, which he forthwith sends to the Royal Academy. I am afraid these sketches and sketch plans have a great deal to answer for.

I have even known them induce a client to spend more money than he originally intended. Unless this is artfully worked it leads to trouble, I believe. The client says to his friends, "Most expensive man, that architect fellow; made me spend far more than I wanted." Still, I am told it is surprising how a client may be led on by a judicious succession of sketch plans.

On the other hand, I am informed that "sketch plans" may lead a client to expect something that he does not get. Then he is dissatisfied, and feels defrauded. Also I gather that sketch plans occasionally lead to costly estimates and the abandonment of the work. Then the would-be client declines to pay for them, and the architect has to decide between a lawsuit and endeavouring to live on what pleasure he can extract from making beautiful drawings. This is what I am told, but I do not believe it. Indeed, I see sometimes from the papers that clients like the plans so much that they insist on keeping them. Some, indeed, claim a legal right to do so. Why, when they buy a picture, do they not claim the painter's colours and brushes? They are but the painter's tools, the means to an end, as are the architect's drawings. As the opposite to the man with a passion for architects' plans, commend me to the man who does without plans, and who employs a builder to erect a *pot-pourri* of details sneaked from other buildings, and who pats himself on the back in appreciation of his cleverness in saving architect's fees.

The great advance that has been made in water-colour work is not the least striking sign of development in our profession. I can well remember the time when the power to turn out a water-colour sketch of real merit was in the hands of a few men of conspicuous ability. Other men who wanted that sort of work went to specialists. There were more men certainly who could produce able work in pen and ink, but the vast majority produced sketches which now strike us with amazement.

To-day, every man almost can handle a brush, and more often than not in a most creditable way, and the number of those who produce work of really artistic merit is largely on the increase. To this desirable end I think our Association has contributed to a marked degree, and recently I have been greatly struck by the manner in which a large number of our students have represented their designs, many of the sketches being of great merit, and indeed much better than the architecture. It used to be a complaint that the drawings on the walls at the Royal Academy were the work of specialists employed to give fictitious merit to the designs. The fictitious merit may still be there, but at least it is now most usually the work of the designers themselves. Personally, I am not one of those who think working drawings and details should cover the walls at the Royal Academy.

I think the buildings should be represented as they will appear when executed. Working drawings appeal only to the limited circle of the profession itself, whereas we wish to enlist the sympathy of an infinitely wider circle, not from a sordid point of view, but from an educational one.

As it is, the tasteful work exhibited attracts the public not at all, for as yet we have not succeeded in creating more than a languid interest in our work, which apart from our professional brethren, is only seen by our dutifully admiring friends and the man who thinks he is swindled of his shilling'sworth unless he examines every exhibit in the place. Some years ago the editor of a well-known professional journal asked the question of many of our leading men, "Why the exhibit attracted so little interest?" One of the published answers was, "Because there are so few good architects." I do not think so at all. The fault lies with the public, if it lies anywhere, and the necessity of placing our work before it as attractively as possible is bringing its own remedy.

It is natural, too, that the average client should wish to see how his building will look when completed, and from an actual point of view, and in its actual surroundings. He should not be expected to transform himself into a bird for the time being, or to view the building from the upper floor of an adjoining building. Elevations may be meaningless to him, however ably coloured.

I wonder how many architects take the trouble to sketch the actual setting for their building—so essential to the ultimate effect, but surely so very necessary to a harmonious whole? How often do we see a house which would be delightful if embowered in trees, but which looks distressing in the nakedness of a bare field?

I am only pleading for a little more honesty in our sketch plans, which, I take it, include this very necessary "perspective view."

An architect is apt perhaps to represent his design under the most favourable conditions. He conceives it possibly so that it requires a blaze of sunshine to show it to advantage. But in this country we do not live under such weather conditions, and the conception may suffer materially when beheld under a grey sky and pouring rain. I do not suggest that he should present it before his client under such conditions. The result might have a damping effect; but I do suggest that the architect should consider such an effect on his design. These observations may be commonplace and trite to my more experienced brethren, but I would commend them to my younger fellow students as suggestions worth some consideration.

May I offer another hint?—which is this: Instead of preparing a fictitious perspective from the drawings, why should the architect not make an actual sketch—in whatever medium he prefers—from his executed building? A faithful drawing, without exaggeration, with all the blemishes strictly reproduced, and send that for exhibition or publication, as the case may be. You may say, Why not a photograph at once? I do not think so. It would not teach him nearly so much of the defects in his work, and he would lose all the pleasure to be obtained from such a sketch.

It will scarcely be denied that the art of the draughtsman has made enormous progress during the last twenty years or so. I was educated in an office where the traditions of the old "hair line" still lingered, and I can well remember the feelings of awe with which I contemplated the daring departures made by the leaders of the new school of draughtsmanship. The old method was suited to the architecture—very correct, but singularly tame and unattractive. Now, the poorest architecture can be made attractive—on paper—and the disappointment must be all the keener when the executed building comes to be displayed to public gaze. There will be few who will deny that a great advance has taken place in our architecture. Buildings of striking merit and individuality are springing up on every hand, and such violent oscillations as the Gothic Revival and the New Art have brought their inevitable reaction. Personally, I feel that the advance in our draughtsmanship has somewhat outstripped the advance in our architecture, and the rather coarse and dashing methods are apt to be reflected in the ultimate buildings. This has been forced upon my notice somewhat strongly of late in examining the work of our students, and I think I can detect a decided tendency to slur over the study of details. Careful consideration of parts is sacrificed to effect in the drawing, and the architecture is subordinated to a prettily-coloured sketch. I admit that this fault chiefly occurs in the cleverer or more brilliant designs, and that the soberer efforts are often distinguished by tamer methods. But I do suggest that there is a source of danger in the cult of the new draughtsmanship which, if pushed to extremes, may have disastrous effects. The application to actual practice may possibly be a restraining influence. An architect naturally wishes to exhibit his conception in the most attractive form to his client, and, moreover, his sketch plans are his idea of the appearance of the finished building, and everyone will agree that, so far, considerable latitude is not only legitimate but laudable.

But what shall be said when these methods are applied to working drawings? When the traditional manner of distinguishing materials gives place to artistic colouring, and thick ink lines leave a considerable margin for conjecture on the part of the quantity surveyor or builder.

Only recently I heard of an instance where the skilful artist who prepared certain drawings contrived to tint some stonework so that the unlucky surveyor confidently took it as timber. And anyone who has seen a disconsolate foreman trying to scale with a 2-ft. rule from an ⅛-in. plan drawn by a modern draughtsman will readily understand that the architect must not be too particular to 3 in. or so. The moral is that the methods which are legitimate in the sketch plans require modification in the working drawings—no difficult matter in these days of sun prints. Probably the process by which careful and accurate working tracings are made from the sketch plans commends itself to many, and better preserves the spirit of the original conception than a translation into a series of carefully worked out pencil drawings prior to such tracing. I think it will be generally agreed that a surprising loss of original freshness and spice may occur when the first conception is filtered through a number of redrawings.

As I have said, in such a paper as this any attempt to lay down rules for others would savour of impertinence. Indeed, criticism would be out of place. Each man must necessarily use the means which he finds best suited to his purpose, and the mere observer who is ordered to read a paper on such a subject by an implacable committee can only comment; for between the man who supplies his builder with the slightest material in the shape of working drawings and the man who furnishes him with elaborate and fully figured and written-up drawings, lies such a wide field of experience and custom working towards the same end that any attempt to harmonise them would be futile. The one man expects his builder to enter into his mind and identify himself with the thoughts of which the drawings are only the expression—maybe an inadequate expression. Neither the builder nor the builder's men have been trained to this, and the question of success may largely depend upon how the architect can imbue them with his individuality, how fire them with his enthusiasm, how stamp his work with that indefinable something which cannot be expressed on paper. The other man, practical to his fingers' ends, finds himself in conflict with a building financier and workmen trained in technical schools, and, in an honest attempt to combine art and practice, succeeds in imparting a certain hardness to his work which he finds displeasing and which he cannot understand.

I do not suppose there can be two opinions as to which of the two methods we should prefer, but, unhappily, until we train our workmen differently, and something of our old craftsmanship methods can be recovered, we are labouring under great disadvantages. It seems to me that two forces are operating at the moment—an artistic force and a technical force—and that they are operating on conflicting lines. Nor do I know that we are doing much to harmonise these forces. I think we should as a body have a far larger say in the training of our workmen, and turn the effort for technical instruction in the right direction. New constructional methods born of the technical schools are creeping into use, mainly, I think, where the architect ignores such points in his artistic working drawings; and personally, though desiring to be progressive, I have grave doubts whether these new methods are improvements on the old, and I am sure the actual workmanship is inferior. Do not many draughtsmen seem to fear that they will lose the beauty and interest of the design if the working drawings are elaborated? In detailing, no time is begrudged to the strictly architectural part, but too often, I suggest, the constructional niceties are left to the imagination. It is a hardship, perhaps, to imply that the little tricky methods and mannerisms which lend spice to a drawing should be abandoned, but are not many of them meretricious and meaningless, and confusing to the builder?

It is a sore temptation to give to one's working drawings the little deft touches which suggest that the hand of Time has already dealt kindly with the building as yet on paper only. Then, when it comes to be erected, the designer is disappointed at its stiffness and lack of interest. There must be some fault in the design that has to depend upon an appearance of premature old age for its beauty, and now, forsooth, we have architects who go to the length of applying these tricky methods to the actual building. The "cocked up" apex of a gable, caused by the

sagging of weak timbers, certainly adds piquancy to an old building, and one is tempted to exaggerate the tilt of a double tile verge on a drawing to soften the stiffness of straight lines. But the deliberate imitation of such effects by false construction appears to me to be bad in principle.

I know an unfinished house at this moment where the architect has not only suggested that his ridges have dropped a foot below the gables, but he has by artificial means given a wavy line to the main ridge, and a sagged appearance generally to portions of the roof. He might have built his walls out of plumb while he was about it, laid his floors out of level, and thrown in a few settlements. What is the effect? That of an interesting bit of architecture, with all the glamour of age to soften its angularities? Not at all. It suggests an ordinary bit of modern work, with an extremely ill-constructed roof. I only trust it may be condemned as a dangerous structure by the local surveyor. To my mind, such methods are a dragging of architecture in the mire, and totally unworthy of the high ideals we ought to sustain. But are they not the logical outcome of the new draughtsmanship, pushed to extremes?

I am not advocating in any sense a return to the old methods. I do not desire for a moment to return to the days of "hair" lines and stock colours of distressing rawness to indicate materials. I only advocate the keeping of the great development in draughtsmanship within legitimate limits without the aid of false and tricky methods.

The architect pictures his building in his mind. He conceives the effect which he wishes to produce, and conjures up a vision sometimes vividly clear, sometimes vague and shadowy, and in his sketch plans his endeavour is to realise that vision. To do so, any means almost are justifiable. He wants to judge of the effect of his windows in the balance of parts, and "patches" them in, and having secured the desired arrangement he adjusts them to his plan and modifies their appearance according to the manner in which they are glazed. He wants to see the effect of shadows and projections and scheme of colour, and to see it in its perspective aspect. He wants to set it in its surroundings and blend it with them, and the nearer he can hit off the ultimate appearance of his building the better for him and for his client. But should he produce something which cannot be realised through the medium of the working drawings, and cannot be faithfully reproduced in the finished building, what is at fault? Either his power of realising his vision or the means by which he does so. As I have tried to show, each man's individuality is necessarily reflected in his methods of draughtsmanship.

The "picturesque" man will draw picturesquely. The "cast-iron" man will produce cast-iron drawings. The academic school will proceed by academic methods, as we see exemplified by our French brethren.

Happily we are bound by no traditions. Each man roams "fancy free" over his paper, so to speak, and strikes out a vigorous line of his own, and as a result I venture to think we are producing domestic and ecclesiastical work second to none in the world in its variety and robustness—the first in its adaptability to the home life of our nation and the character of our country, and the second to the requirements of our religious life.

We fail, I think, in the one thing wherein academic methods would be advantageous—in our public buildings, to which we apply too often the "prettinesses" more appropriate to our domestic work. We are not an "official" race, and we cannot think officially, or stamp our public buildings with an official character. Our railway stations are a disgrace to a civilised nation, and, like too many edifices allotted to the public use, frankly utilitarian. Our French friends beat us handsomely with their official work, and, despite their academic training, without slavish adherence to Classic prototypes.

We have not much to learn from them in the way of draughtsmanship, unless it be the scrupulous care with which their drawings are prepared. We might certainly gain something by an examination of their studies for carving. I well remember being shown some full-size working drawings for stone capitals by the late M. Henri Révoil, executed with the brush on dark-toned paper, the high lights being touched in in a white medium, and which for brilliance of execution beat anything I have ever seen. On the other hand, he was pleased to bestow unstinted praise upon my poor little pencil efforts, which, he said, were so unlike the methods obtaining in his country. Please forgive the personal allusion in this incident, but it is the only case I can produce to show the effect of our methods upon our French friends.

It is only my own opinion, but I must say I feel our American brethren are considerably ahead of us in matters of draughtsmanship, in spite of their French training, and they have struck out on vigorous lines characteristic of their nation.

I have looked through some of the illustrated catalogues of their recent architectural exhibitions, and I confess to a little feeling of chagrin that our representatives make a comparatively poor show in matters of draughtsmanship. I may be wrong, and probably am, and you must please take my opinion for what it is worth. But if we are behind at all it will not be for long, for, having decided to change our conservative methods, we develop rapidly. Only let us beware that we do not rush into the opposite extreme. We want to breed architects, not draughtsmen merely, and must not neglect the study of our art for the sake of the drawing of it, for, after all, the drawings are only a means to an end.

I have seen many a working drawing most beautifully executed, exquisitely coloured, and I have envied the man who could produce such delightful architecture. It was not until I saw the actual executed work that I realised there was a something lacking. I could not tell why the executed work should not look as well as it did in the drawing. I have compared such drawings with the executed work line for line, and could only come to the conclusion that the clever draughtsman had cast a false glamour over the design which disappeared when materialised.

I wonder how many architects feel as contented with the executed work as with its delineation on paper, and yet, after all, the former is the ultimate goal, conceived in the mind, and its concrete form should satisfy that conception and not accord with the means by which it is brought to fruition.

Have not the exigencies of competition drawings largely led to this "falsification"? The temptation to attract the interest of the assessor by meretricious means is but natural. A design, meritorious in itself, sinks into insignificance in the company of others more cleverly manipulated, and delicacy of draughtsmanship is altogether killed by the bolder methods. This leads not only to competitive designing, but to competitive draughtsmanship also, and I suggest that its dangers, not only to architecture but to ordinary practice, are already apparent, and that the present generation of students are too apt to consider mere "telling" draughtsmanship the be-all and end-all of an architect's career.

I do not mean to deprecate for a moment the loving care and deep interest which any architect worthy of the name should put into his drawings. Any such man will always find himself wrapped up heart and soul in them, and the mere worthy rendering of the most commonplace construction will be a source of interest simply for the love of the work.

I only ask that we may be judged by our materialised work—a living, vitalised, educational force—rather than that we should appeal to the senses by the imperfect and traditional means by which we achieve our ends.

There would be an immense field before the man who could invent a method for registering our thoughts as the camera will register the desired view. It would save much distasteful routine work. We do not know what the science of the future may have in store for us, but it is to be hoped no *savant* will devise means for *thinking* a building into existence, for then we should lose much that delights and compensates in our sketch plans and working drawings.

I must not conclude these imperfect remarks without offering my heartiest thanks to those gentlemen who have so kindly lent drawings, I will not say to illustrate my paper, but to give an object lesson to those who hope to follow in their footsteps. It must be of great interest to us all to see the methods of other men, especially men whose work we admire, and I feel sure an intelligent examination of these drawings will point a lesson to our students present in a way that no remarks on such a subject can ever hope to do.

Mr. Walter Millard, in proposing a vote of thanks to Mr. Wilson for his entertaining lecture, said that the subject had been treated on what the lecturer called broad lines. Personally, he should rather like to narrow it to the dimensions suitable to the junior student, for the subject was such a large one. He could not help thinking of those junior students who were engaged in doing little exercises called sketch designs—designs of imaginary buildings on imaginary sites according to imaginary conditions—and of what happened to those students when they came to the real thing, *i.e.*, the making of working drawings. In doing that the student ran up against hard things, he wanted to know how thick he ought to draw his walls at the various heights; the next thing was as to footings and so on; and it was no use his being broad-minded until these points were all settled. He must be able to do a working drawing before he could be of real use in an architect's office. The beginner, generally, could not know even what size to draw things; he had a scale, but he did not know how much to mark off on the paper. And when he had settled the thickness of the walls, and knew a little about the Building Regulations, he had to find out about the floors, and he wanted to know the scantlings of the joists, or the sections of the steel work, the stonework, and things like that. He was, in short, a little bit at sea in doing a working drawing, and that was serious when someone had to work to the drawing. When the student took to making working drawings he gradually got some inkling of the profundity of his own ignorance. An engineer friend of the speaker's told him the other day his ideas as to working drawings. He asked his draughtsmen, "Have you, in making these drawings, put yourselves in the position of the contractor who has to work to them?" "Will he find in them all he needs and should expect to find?" That was a fair test of a good working drawing. The man who had always remained only in the office was liable to be "a little bit out of it" in providing drawings for those who had to do the work on the spot. That was an engineer's opinion of the standard as to working drawings, and it was not a bad one. They must produce working drawings that anyone could work from—drawings that the quantity surveyor and the builder's foreman could read and work from, and to do that involved a great deal. It implied understanding and knowledge, and the ability to apply knowledge; it implied foresight, experience, and decision. It involved their knowing all about things in order to decide what ought to be done. The man who had acquired these qualities would not trouble about the different styles of drawing—about thick and thin lines. He would not waste his time in that way; he had got over that. His standard for a drawing was: "Is it workmanlike? Is it fit for the purpose?" Whatever may have been the case in the past, working drawings in our days were indispensable means of producing building work—the means, not the end. But they might be efficient or inefficient means, according to the capacity and will of the draughtsman. He suggested to architectural students, as a modest aim of their ambition, that they should try to acquire the power and capacity to produce real working drawings, for unless they could they would never be of any real use to an architect. That really involved a tremendous lot, even for producing the mere carcass of an ordinary building, and it was no slight accomplishment. So long as they could only produce sketch designs of a sort, they would be of little use to an architect, still less were they likely to become architects. The acquirement of the power to produce a good working drawing was the junior student's main chance of escaping from the fog of the "non-knowledge" which surrounded him, the density of which would discourage him if he could realise it. The observation necessary to the making of a good working drawing would help him to get a little knowledge, with knowledge would come a glimmering of light by which to grope through the fog; will and skill might do the rest. As to drawings of existing work, were they to be faithful or unfaithful records? What value were they to put on a partially faithful representation of work? An unfaithful drawing of existing work might quite easily be far worse than useless, as it would give false information instead of the facts. Then there was a class of drawings which he would call incomplete drawings. He had had drawings put before him of a good piece of important work

about which he had had to ask: What is it built of? The answer had been: "Oh! stone, but I do not like disfiguring my drawings with jointing." Just fancy! A student of building-work not wanting to disfigure his precious drawings with evidences of construction! He mentioned that as a typical case which one met with frequently. Let the student play at making sketch-designs; they might have their use, but they certainly had their limitations of usefulness; but the sooner he set his mind to the real business of fitting himself to make working drawings, the sooner he would be of service to others and get on to the road of becoming an architect himself. It was his chief hope of professional salvation, which salvation he had to work out for himself.

Mr. Walter Cave, who seconded the vote of thanks, said that Mr. Needham Wilson seemed to attach too much importance to the value of the perspective sketch. Mr. Millard evidently felt the same when he spoke of the importance of the working drawing, and in speaking to students by far the most useful thing they could do was to teach them anything they could as to working drawings. The sketch-perspective was, in his opinion, of practically little value to the architect, except as affording some slight illustration of how things were to go; and it was most misleading to the client; for the actual building never looked as it did in the sketch, and the disappointment was general. A sketch of the site before a building was erected was too often forgotten, and he thought that a careful sketch of the site would help architects very much to determine the proportion of their buildings. The accuracy of drawings was of great importance. One often saw students' drawings of details in which it had been taken for granted that certain things were known which were not shown, and perhaps a plan of some portion was not shown. It was in such little matters that students often erred—and a good many draughtsmen, too. If the plan, section, and elevation were properly placed on the paper one ought not to have to search for them; they ought to appear quickly to the eye, so that one could read them. In the case of the foreman, this was especially important, for if he could not understand the plans, he had to spend hours in trying to do so and in writing letters, etc., and this entailed explanations and letters by the architect, all of which meant loss of time. The lecturer's statement that they wanted to breed architects, not draughtsmen, seemed to sum up the case pretty well; but at the same time architecture could not be produced nowadays without draughtsmen. Unlike the Middle Ages, there were very few intelligent building workmen in England to-day. In the Middle Ages, as they knew, buildings were produced by the workmen in many cases, and the working drawings which were used, so far as those remaining went to show—of Lincoln Cathedral, for instance—were the merest diagrams; practically little more than the setting out of the arches, where the piers were to come, etc.; the detail depended to a large extent on individual taste. If we attempted to do the same nowadays, architecture would cease to be even what it was. We had to deal at the present time with a class of men whose education had been entirely neglected as far as art was concerned, and they had to be taught and trained, and this could be done, to some extent, by accurate drawings, which would enable them to see and appreciate the building as a whole.

Mr. Arnold Mitchell, in supporting the vote of thanks, said there was one point which had always struck him in the preparation of working drawings, and that was the importance of giving all the information it was possible to give quite regardless of the effect of the drawings themselves, and the importance of giving that information in the most simple, easily-read form possible. They must think of the builder as knowing nothing whatever of the scheme to be put before him, and they must think that if there were two ways of reading the plan there would be someone in the builder's office—not necessarily the builder—who would read it the wrong way; and therefore they must do all they could to make the drawings clear. Another thing they should do was to use small size sheets. Looking round the walls at the set of working drawings shown that evening he noticed that they were, generally speaking, all $\frac{1}{8}$th scale drawings. Drawings on small size sheets were much more easily handled, and when they were passed from the architect's office to the quantity surveyor it was easier for the quantity surveyor to work from them. Not only did he advise small size drawings, but he said, crowd all you can on to those drawings, and he said that for two reasons. First, it was easier to do this when work grew in an office, and it was astonishing how much work could be got on to an imperial sheet. In a corner of the room, he might mention, there were some three or four sheets of drawings on which work costing from 2,000*l.* to 3,000*l.*, including $\frac{1}{2}$-in. detail, had been crowded on one imperial sheet. There was this advantage, too: when the drawing got into the quantity surveyor's hands they got one man to take off the quantities. The quantity surveyor often complained that all the detail was on one sheet, and that he could not divide the work. That was what he (the speaker) wanted, *i.e.*, for one man to take the whole job from beginning to end, and where that was done the quantities were closer and the work was better done. In making working drawings they should figure them throughout. That was all-important. They might be badly drawn, as many of them were, but the draughtsman should figure every wall, every dimension, every window, and so on; to do this was invaluable, for troubles were avoided and any errors—as there constantly were in these matters—were much more easily corrected when the foreman went to check the figures. He had been much interested in what Mr. Needham Wilson had said as to the preparation of sketches for clients. The importance of this was at the beginning of a job. Mr. Wilson's suggestions under this head were very useful, and they tended to save a great deal of trouble, but he did not attach so much importance as the lecturer did to the value of elevation and perspective, more particularly perspective. He hardly ever prepared an elevation to submit to a client. He did not do so more than once in ten jobs, but he sent a little thumb-nail sketch, generally on a post-card. He found that that was an enormous saving of trouble, and that it generally satisfied the client. He commended to the student the knack—and it was only a knack—of sketching out from a plan. They were thinking of the roof of the building from the commencement—or should be—and after they had slightly sketched out the grouping of the building in pencil on the post-card they could then do it in ink. This was easily done, and it was all the client, in nine cases out of ten, wanted; in most cases they were delighted. A friend of his in the north had another method of dealing with sketch designs, which seemed a good one, though he, the speaker, had not tried it himself, but his friend did charming work. He prepared an eighth scale drawing, and above, in plasticine, he made a little model. The plan was done to a small scale, and the little model was done roughly in about a couple of hours. When it was dry he applied the colours. It sounded a long process, but the whole work did not take more than a day, and the client was delighted to have this opportunity of looking at the model of the structure.

Mr. Arthur Keen also supported the vote of thanks, and said he had made a great number of sketch drawings and working drawings in his time, and had come to regard them as necessary evils. With sketch drawings the architect was apt to deceive himself as well as the client, and he regarded the deception of the client as the lesser evil. Sketch drawings could not represent the building as it was going to be; but the perspective sketch was likely to give a best impression of what the client was going to get. It was easy to deceive oneself with sketch plans, and they were so easy to make that one could not be too careful to work accurately. Everything must be very fully, though roughly, drawn in the sketch drawings. He took it that the sketch plans should embody the whole of the building, but should omit things which were not essential at the moment, such as flues, etc., but they must show that the architect had realised the building for himself, and had realised it accurately. As to working drawings, he felt that a great risk was run of losing the character of their work, by reason of the great accuracy that was necessary in the preparation of working drawings. A working drawing, to be sufficient, must leave no room for suggestion at all. If they did not take the trouble to make all clear on the drawings they would have to answer all sorts of inquiries and letters, but in putting everything in the drawings they lost character and "go" in the design. The trouble with assistants in offices was that they did not carry the drawings far enough; they took too much for granted, and were prepared to let the builder settle things for himself. In his experience they should leave nothing to the builder to settle.

Mr. John Murray said the subject seemed almost endless. No doubt what Mr. Wilson meant by treating the matter in a broad-minded way was that they should endeavour to get breadth of effect in all their work. The chief thing in most sketch and working drawings was accuracy, which was all-important, and there were many drawings prepared that were inaccurate. If they could remember that drawings and sketches were really the concentration of their thoughts depicted on paper their drawings, when finished, would be more satisfactory than they are sometimes. He felt that no sketch nor working drawing could be satisfactory unless the scale and proportion had received full consideration. Pretty sketches were very often made, and they were often misleading, especially when scale and proportion were absent from them. Perspective drawings had been known to vary from the plans, and it was quite possible to have a pretty perspective which was quite impossible if the plans were carried out. Mr. Wilson suggested that plans were hardly necessary, at exhibitions like the Royal Academy; but he (the speaker) thought that if plans were more often shown the credit that was sometimes given to perspectives would not be forthcoming. The sketch that depicted the main leading lines of a design was the one which was always the best and most satisfactory, and the grouping of the parts of a design should be always subservient to the outline. Too much was usually thought about detail and too little about outline and grouping of buildings. Colour sketches should show, as far as possible, the actual colour of the materials, otherwise clients would be deceived as well as the architect. As to the undefinable something referred to by Mr. Wilson, he thought that that consisted in the power of seeing in the mind's eye the finished building, and weighing up all the points in connexion with line, colour, and proportion. He felt that the best official work was done by producing monumental work. There was comparatively little real monumental work done nowadays, and he would suggest to the students that they should think monumentally, and if this were done they would produce in the future better architecture. Details of a design could be readily filled in after the general monumental conception had been settled. The most telling draughtsmanship was that which was the boldest, and the greatest pleasure an architect had was probably in the thinking out of a design rather than in the actual drawing of it.

Mr. H. P. G. Maule said that a good deal had been said about students' drawings, and he might say that a golden rule for quite a young student when he was preparing a sketch scheme was that he should first of all get out his scheme comparatively roughly, and then start doing a $\frac{1}{2}$-in. detail. Let him determine exactly what he wanted to design, by threshing out his construction to $\frac{1}{2}$-in. scale. The young student would not know what he wanted at first as to materials, but with $\frac{1}{2}$-in. detail he almost immediately had to determine what materials to use for the different parts. As to working drawings, the one thing to remember was: Will the comparatively uninformed builder's foreman interpret my ideas in timber, or stone, or whatever it may be? If they had that question constantly before them they got face to face with actualities, and the result was a great improvement in working drawings. He rather differed from Mr. Mitchell when he spoke about saving trouble. It seemed to him that the more trouble one took the less trouble one had.

The Chairman, in putting the vote of thanks, said he hardly understood what sketch designs meant. If they designed a house or anything else they had to make a plan and work the scheme out thoroughly, and if they did not do that he did not see how they could send a design to a client unless they ran the risk of getting into difficulty afterwards. They had to work out everything in the fullest way—all except the actual construction, so that they could make an estimate which was accurate enough to send to the client, and would not give them subsequent trouble. The preparation of working drawings was more or less a personal matter,

and he did not think they could lay down any hard-and-fast rules. As to working out the complete design at first, and crowding the drawings with dimensions, that was very well in one way, but it was seldom that one could design a building and not have to alter it as it progressed, and it was quite open to discussion whether the system of having the fullest drawings at first was the best.

The vote of thanks to Mr. Wilson, coupled with thanks to the various architects who had lent drawings, having been heartily agreed to,

Mr. Wilson briefly replied. As to treating the subject on broad lines, he meant that he should treat it on those lines, but he did not wish to limit those who took part in the discussion to those lines. As to the President's remark that he hardly knew what sketch plans meant, he might say the same; the subject was given him, and he had to write about it. It was a difficult matter to draw an absolute line of demarkation. He was greatly indebted to those gentlemen who had lent him drawings, and he thought that only once before had such an interesting collection of working drawings been brought together as they saw that night.

The Chairman announced that the next meeting would be held on April 7, when a paper would be read by Mr. H. Phillips Fletcher on "The Buildings of the World's Fair at St. Louis, 1904," preceded by the special meeting at 7.15 p.m.

TWO SURREY PROPERTIES FOR SALE.

THE Manor House Estate at Merton has been placed in the market. King Henry I. gave the manor of Merton to the priory founded there in 1115 by Gilbert Norman, Sheriff of Surrey, for Austin Canons, who held it until the Suppression. Queen Mary I. granted the manor by letters patent of November 4, 1558, to the Carthusian monastery at Sheen, but soon after her sister's accession to the throne it again reverted to the Crown. King James I. bestowed it upon Thomas and Joyce Hunt to be held by fealty only, and not in chief, in March, 1610, and six years afterwards upon Thomas Ford, from whom it passed through various successions to the Dorrils, and then in 1801 to John Hilbert of Wandsworth. The old manor house remained until the close of the XVIIIth century. Of the priory, which gave a name in 1236 to the "statutes of Merton," and possessed revenues amounting to 1,040*l.* per annum at the time of the Dissolution, some buildings survived until the middle of the XVIIIth century. The grounds extended over 60 acres, situated on the banks of the Wandle. At that time two calico-printing works had been established within the walls, the chapel being used as a print-room, and in the latter half of that century another portion of the site was occupied by the copper-flatting mills of Messrs. Shears, of Bankside, Southwark.

Great Tanglev Manor consists of 129 acres in the parish of Wonersh, near Guildford. King William I. gave it to Odo, Bishop of Bayeux, and it afterwards became the subject of various grants from the Crown. The manor house, of which a portion still stands, and is illustrated by Brayley and Britton, was built in 1582 by John Caryll, in whose descendants it continued during many generations. In 1782 Lord Grantley pulled down part of the manor house and converted the remainder into a farmhouse. The timber-built residence, albeit modernised since, retains many of its former features, including the porch and hall, the overhanging stories and gables, the court enclosed with loop-holed stone walls, the moat, gardens, and bathing and fish ponds. The figures "1582" appear in the carving of the oaken brackets which support the projecting front.

APPOINTMENT.—Mr. W. Douglas Wiles, who has been chief architectural assistant to the City Engineer of Norwich for the past eight or nine years, and who succeeded the late Mr. Clarke in that position, has been appointed County Surveyor and Architect of Denbigh, North Wales. The commencing salary is 650*l.* per annum. There were seventy-one applicants, and out of this number seven were selected to appear before the Council, viz.:—Messrs. T. W. Cubbon, Birkenhead; Arthur Davies, Town Hall, Manchester; A. Lancelot Lang, Hounslow; G. Dickens Lewis, Shrewsbury; W. Vincent Morgan, Carmarthen; Walter Percival, Longton; and Walter Douglas Wiles, Norwich.

ELECTRIC HEATING.

WE had an opportunity last week of inspecting a novel system of electric heating which has been developed by the Electrical Corporation, Limited, of 69, Aldersgate-street, E.C. In most systems of electric heating the heat comes primarily by radiation from special electric lamps. These radiator lamps are constructed with thick filaments, and glow at a bright red heat when taking a quarter of a unit per hour. In the new system the heat is transmitted mainly by convection currents. Resistance coils wound on porcelain holders are placed inside a metal case, which is furnished with radiating tubes. The cold air enters the tubes at the base of the "Pluto" heaters, and the heated air is given off at the top outlets of the tubes. Thus a continual circulation of the air is kept up, and the appliance is both hygienic and economical. In our opinion, the great advantage of this type of heating is that the coils will practically never want renewing. Theoretically, the life of a radiator lamp ought to be very long, as it is merely a large glow lamp which is run at a low pressure; practically, however, they want renewing owing to accidents and rough usage. We do not agree with the inventors when they say that the drawback to the use of the "old-fashioned lamp radiator" is that it produces light, and so cannot be as efficient as a radiator which only produces heat. It is well known to physicists that in the case of the ordinary glow lamp the energy expended in producing light rays is only about 5 per cent. of the total energy consumed. In a radiator lamp it is much less than this, and, remembering that the visible rays heat quite as much as the invisible ones, it will be seen that this drawback is imaginary. It is stated that the consumption of one unit will raise the temperature of a thousand cubic feet of air 20 deg. C. in one hour. We think that in many cases it would heat a room more rapidly than this. After electric heaters have been running for about fifteen minutes, the amount of heat radiated or carried off by convection currents must depend only on the amount of energy consumed, and so experiments on the relative efficiency of heaters are entirely misleading unless due weight is given to the size of the room in which the test is carried out, etc. The amount of heat that can be obtained from one unit of electricity will raise two gallons of cold water to the boiling temperature, and every electric heating appliance has to get rid of this quantity of heat—no more and no less—per unit consumed, by conduction, convection, and radiation. The problem of converting a given quantity of electrical energy into heat, unlike the corresponding problem for light, is an exceedingly simple one. The difficulty arises as to the best way of distributing this heat. The "Pluto" heaters do this in a novel manner, and will prove useful in many cases.

THE REPAVING OF WATERLOO BRIDGE-ROAD.

THE following petition has been drawn up for presentation to the Lambeth Borough Council at their meeting on Thursday this week:—

"To the Mayor, Aldermen, and Councillors of Lambeth.

We, the undersigned ratepayers and occupants of premises in Waterloo Bridge-road and adjacent thereto, have heard with extreme regret that your Council have decided to take up the wood paving and substitute granite setts in that road. We hereby respectfully submit our strong protest against that decision, and request the Council to reconsider the question, and to continue the use of wood paving.

Waterloo Bridge-road is one of the most important thoroughfares in the borough, and indeed in the Metropolis, and as such it deserves to be paved in the best possible way. It may be that a pavement of granite setts will last longer than one of wood, but in every other respect the advantage lies with the wood. If the existing wood pavement in Waterloo Bridge-road had been more efficiently and frequently cleansed and attended to, it would have continued in better condition, affording a better foothold for horses, and enduring for a longer period. We submit that the occupants in Waterloo Bridge-road are entitled to as quiet and as clean a pavement as is enjoyed by the occupants of other thoroughfares in the Borough of Lambeth. This consideration is of the greater importance inasmuch as the traffic on the road is certain to be largely increased, not only by the natural growth of London, but as a result of the opening, which will take place before long, of Kingsway, the new road leading from Holborn to Waterloo Bridge. Moreover, the adoption of motor traffic and the certain increase in the use of large motor lorries, many of which are already on the road, will be a cause of the greatest annoyance and inconvenience, and of injury to the welfare of the occupants and those who have the misfortune to live over the premises should such a noisy paving material as granite setts be laid down.

In other parts of London, and in nearly all the leading provincial cities and towns, the granite sett is being abandoned for the wood block. There can be no reason why the borough of Lambeth alone should adopt a retrograde policy. We trust, therefore, that your Council will accede to our request, and relieve us from the grave injury which would ensue if a granite paving were laid down."

We certainly sympathise with the feelings of the petitioners on the question of noise, but it must be remembered that the choice of pavements is at present a kind of choice between one disadvantage and another. Granite is noisy; asphalte gives bad foothold for horses; wood has neither of these drawbacks, but it is insanitary. We do not know what is the motive of the Lambeth Council for proposing granite; but we do think that the noisy character of that pavement is a very serious nuisance in a street with large traffic.

THE SURVEYORS' INSTITUTION:

RATING OF RAILWAYS.

AN ordinary fortnightly meeting of the Surveyors' Institution was held on Monday at No. 12, Great George-street, when Mr. F. Oliver Lyons, B.E., M.A., read a paper on "The Rating of Railways: their Over-taxation, its Cause, and its Remedy." He said his object was firstly, to show that the total rateable value of the railways of England and Wales exceeds the maximum limit apparently laid down in the Valuation Acts; secondly, to point out the legal anomaly which exists in connexion with the rating of railways; and thirdly, to suggest the remedy or remedies which must, he thought, necessarily be applied before the present state of affairs could be brought to an end. He advocated the cumulo principle of valuation as employed in Ireland, as against the parochial, and said that if, as he hoped to show, the adoption of this principle would cause the ratio of rateable value to net receipts to fall heavily on England and Wales, a great reduction of taxation would occur, without any injustice being done to other ratepayers.

In the course of subsequent remarks, he mentioned that the net receipts (excluding miscellaneous property) of the English and Welsh railways rose from 27,364,144*l.* in 1893 to 31,253,778*l.* in 1903, an increase of 3,889,634*l.* In order to earn this sum the railway companies as tenants had to supply the following additional rolling stock, viz., 3,781 engines, 8,089 carriages, 3,633 other vehicles, 97,209 wagons, and 6,285 other class of wagons, the total value of which in 1903 cannot have been less than 19,000,000*l.* Moreover, about 2,600 miles of single permanent way were added during that period.

The railway companies would not be in a position to form an absolutely definite opinion as to whether they would, or would not, benefit in each individual case by the adoption of the cumulo principle of valuation, until they carried out the two following suggestions, neither of which had ever been put into execution.

(1) The rateable value of each railway in every parish should be totted up, and the total actual rateable value of each line thus obtained.

(2) A cumulo valuation of each railway should be made in a fair and reasonable manner.

It was evident that a definite and reliable opinion as to whether a railway was under or over assessed could not be given unless these two sums were known, and compared with each other.

THE ARCHITECTURAL ASSOCIATION SPRING VISITS:

V.—SHIPPING OFFICES, COCKSPUR-STREET, AND NEW GOVERNMENT OFFICES, PARLIAMENT-STREET.

TWO IMPORTANT buildings in course of construction afforded the members of the Architectural Association much interest and study both in design and in current building methods, upon the occasion of the fifth spring visit on March 25. The two subjects are both to be used as office premises, the one to be tenanted by Government departments, and the other by a combination of the principal American shipping companies.

The latter, Nos. 1 and 1A, Cockspur-street, occupying one of the most valuable West-end sites, covers an area of 4,720 ft. super., and has three frontages; that facing Pall Mall being 71 ft. 7 in., Cockspur-street 63 ft., and Pall Mall East 54 ft. 1 in. Mr. Tanner, jun., the architect of the work, was present, and supplemented the notes previously given to the visitors with general information relating to the work. This is one of the important undertakings which are being constructed upon American lines in

London. The Waring-White Syndicate are the general contractors, and, although some American materials are employed, the work is sublet to various well-known English firms.

Mr. F. W. Nicholson, the organising manager, who has been responsible for the erection of many American "skyscrapers," put the plans and all detailed information as to processes at the disposal of the party. The whole building will be used for offices, the ground-floor and basement by the shipping companies, and the remainder let off to outside tenants, who will enter from Cockspur-street.

The lease from the Crown stipulated that the new building was to be designed in keeping with the adjacent Union Club and the College of Physicians. This accounts for the presence and actual position of the large cornice which, to say the least, is an unfortunate element in a design which is not altogether good enough for the fine site. We fail to see any advantage to the architecture of London by imposing such restrictions. A main cornice should at all times be the crowning feature, but in this case it takes a position about half-way in the height, so that the superincumbent masses, which are here very much broken up, overpower the front. The idea of obtaining uniformity in the façades of this island site is a good one, but the mistake lies in the fact of leasing the various parts for buildings of diverse character.

Portland stone is used on the elevations, rising from an Aberdeen granite base. Internally the ground floor is panelled in walnut, and the flooring outside the counter laid with interlocking rubber tiling, a material now widely used in the United States.

The upper offices are furnished with Honduras mahogany. Asbestic plastering is used throughout. The principal staircase is arranged independently of the east party wall, and is carried by four stanchions placed in the corners of the well, which well contains a passenger elevator. A luggage lift is also provided for lowering travellers' baggage to the basement.

It is intended to open the premises for business on May 1 next; the actual building operations will then have taken eight months, which, considering that there is so much architecture and solid walls in the scheme, is very rapid construction.

It is an excellent illustration of American methods applied to a British design.

At the new Government offices at the south end of Parliament-street much was seen of very considerable interest, and the architectural treatment could be regarded with entire satisfaction. Three-fifths of the whole scheme, which is the extent of the present operations, is now well on towards the height of the main cornice, and gives promise of a great work.

The large circular court* is especially fine, and the stone vaulted loggia entrance from Charles-street, arranged on the axis of the entrances to the adjoining Foreign Office, has great dignity. Equally satisfactory results may be anticipated in the interior of the building, and it is generally evident that the architect was a master of proportion.

In general respects there is but slight variation from the original design, which the late J. M. Brydon had completed before the profession mourned his loss. We gave plans and views in our issue of March 25, 1899, from which the chief departures are of a practical working nature. The principal variation consists of continuing the original small parts of the top floor round the whole of the building, but this does not affect the elevations as first designed.

Portland stone is again the material used on the façades, and the general internal construction is as fireproof as possible. In this respect some wrought-iron ribs to receive metal lathing and plastering in the barrel-vaulted corridors received much favourable comment.

The work of Messrs. Spencer, Santo, & Co., the contractors, is in every way admirable. The members were indebted to Mr. Allison, representing Sir Henry Tanner, architect to the Office of Works, for a very lucid explanation and description of all matters concerning the construction of this large undertaking.

NEW THEATRE, ABERDEEN.—Messrs. Drew-Bear, Perks, & Co. ask us to mention that they were the contractors for all the steel-work for this theatre, which was briefly described in our last issue.

* See the *Builder*, May 5, 1900.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, Mr. E. A. Cornwall, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee it was agreed to lend Battersea Borough Council 7,306*l.* for electric lighting purposes; Bermondsey Borough Council 13,270*l.* for paving and sewer-works; St. Pancras Borough Council 5,370*l.* for electric light installation and meters; and Wandsworth Borough Council 800*l.* for underground convenience and 2,765*l.* for sewer works.

Storm Floodings—Pumping-station in Battersea.—The Main Drainage Committee reported, and it was agreed to after discussion, and after a motion to refer the matter back in order that tenders might be obtained had been defeated:—

"That the estimate of 20,000*l.* submitted by the Finance Committee be approved; that expenditure not exceeding 18,745*l.* be sanctioned in connexion with the construction of section No. 1 of the proposed pumping-station at the junction of York-road and Creek-street, Battersea; that the work be carried out without the intervention of a contractor; and that the drawings, specification, and estimate of 18,745*l.* be referred to the Works Committee for that purpose."

The Apprenticeship System.—The Education Committee, in the course of a report in which recommendations were made as to certain technical or industrial scholarships, stated that there was a general opinion that the best system of preparation for the skilled handicrafts was, as regards boys, by means of the old-fashioned apprenticeship, and they proposed carefully to consider how far the powers of the Council and the modern industrial conditions of London trades would enable any suitable modification of that system to be made use of. In most London industries, however, the old system of apprenticeship had fallen into desuetude, and the Committee did not think that the Council should abandon its present system of technical or industrial scholarships in the meantime. The present proposals were merely temporary in character, in order to avoid a breach of continuity. The total increase of expenditure involved was about 2,800*l.* a year, but this would not be reached for five years.

The recommendations of the Committee were adopted.

Widening Fleet-street.—On the recommendation of the Improvements Committee the Council agreed to bear half the cost, namely, 7,750*l.*, towards widening Fleet-street by setting back the frontages of Nos. 53, 68, and 69.

Victoria Embankment Gardens—Lighting by Electricity the Villiers-street Section.—The following recommendation of the Finance Committee was taken back after discussion as to the desirability of the scheme, and the appropriateness of the design:—

(*a*) That the estimate of 1,000*l.* submitted by the Finance Committee be approved; that expenditure not exceeding that amount be authorised for lighting by electricity the Villiers-street section of the Victoria Embankment Gardens; that any necessary tenders be invited and contracts entered into.

(*b*) That the tender of Messrs. W. Letheren & Sons, to supply and erect for 330*l.* twelve wrought-iron arches in accordance with the design submitted to the Parks and Open Spaces Committee be accepted.

The Committee reported as follows:—

"In view of the desirability of securing that the design of the arches should be of a highly artistic character, we have had drawings for the same prepared by Mr. H. A. Prothero, M.A., F.R.I.B.A. After due consideration we obtained a tender for the supply and erection of twelve such arches from Messrs. Letheren & Sons, of Cheltenham, who, we were advised, had had considerable experience of work of this description. We propose in due course to invite tenders for the work of laying the necessary mains and the wiring and fitting of the electric lamps and shades. Where the mains will be under the surface of grass areas the trenches will be dug and the surface restored by the park staff, as this will be the most economical method of doing the work."

London Building Acts (Amendment) Bill, 1905.—The Parliamentary Committee brought up a report as to the London Building Acts (Amendment) Bill, as follows:—

"We report that, as the result of a compromise arrived at on March 14, 1905, at the House of Commons, between the members of Parliament in charge of the London Building Acts (Amendment) Bill, and of the City of London (Escape from Fire) Bill, and other opponents of the Council's Bill, it was agreed to drop all parts of the Council's Bill with the exception of Part VIII. (Means of Escape from Fire). We are satisfied that there was no possible chance of the Bill passing second reading as it stood, and that, therefore, as the whole of the Bill would have most probably been rejected, the course taken was, in the circumstances, the best which could have been followed. It would, in our opinion, have been regrettable if, because the Council was unable to pass the whole Bill this year, it had therefore declined to avail itself of the opportunity of placing before the Committee of the House its proposed amendments of the law as to means of escape from fire. As a result of the compromise, so much of the Council's Bill as deals with the means of escape from fire, and the City Bill, will be referred to the same Select Committee for consideration."

The Public Health Committee also brought up a report on the subject, in which they mentioned that:—

"The Council's Bill contained provisions as to the open space about buildings; the height of buildings; the lighting of staircases; the height, lighting, and ventilation of habitable rooms; and the making of by-laws respecting building on sites which are damp or have been heavily manured; as well as other provisions of importance to the public health; and we are of the opinion that an early opportunity should be taken to promote legislation dealing with these subjects."

The Highways Committee reported as follows on the subject:—

"We have had under consideration the question of the effect upon the Council's tramways work of the omission, among other clauses, from the London Building Acts (Amendment) Bill of the present session, of those relating to the cubical extent of buildings, and the widening of thoroughfares upon the payment of compensation. The former question is of great importance in regard to the erection of buildings for dealing with the operation of a large electrical tramways system, while the other clauses, with regard to which we understand that the Improvements Committee are specially reporting to the Council, would, we feel, have been of the utmost use in enabling the Council to develop more rapidly the locomotion system of London. We hope that these proposals will be again put forward in the session of 1906."

The report of the Improvements Committee contained the following paragraphs:—

"The Bill contained clauses (Nos. 18, 31, 32, and 176) to enable a local authority to pave and to add to the foot pavement any open forecourt which might be left between a building and the carriageway; to enable the Council to determine a building-line on one or both sides of any important street at a distance not exceeding 75 ft. from the centre of the street; to acquire any buildings, land, or structures in advance of the line so determined, or to require any such buildings or structures to be set back to such line on payment of compensation; to provide that after the determination by the Council of such a building-line no building or structure shall, without the consent of the Council, be erected or extended in advance thereof; to enable the Council to make new streets where necessary to continue a thoroughfare widened as aforesaid, or for the purpose of affording through communication; to enable the Council to remove barriers, etc., between one street and another; and to provide for the settlement of questions of compensation and for the necessary machinery to enable the Council to exercise the powers sought to be obtained.

We are of opinion that these clauses, if sanctioned by Parliament, would have conferred upon the Council very necessary and desirable powers in respect of street improvements, particularly in connexion with the widening of thoroughfares in which there are or may be tramways. We have on several occasions advised that further powers should be sought by the Council with the view of enabling street improvements to be undertaken more expeditiously and at less cost than is at present the case. We regret the circumstances which made it necessary for the clauses to be dropped, and we desire to express the hope that it may be possible to submit to Parliament in the session of 1906 a Bill containing clauses similar to those referred to above."

The Building Act Committee reported as follows on the subject:—

"In view of the course taken with regard to the London Building Acts (Amendment) Bill and the City of London (Escape from Fire) Bill we think it our duty to point out that on January 31, 1905, the Council decided to seal and present, if necessary, a petition against the City of London Bill, and on February 6, 1905, we informed the Parliamentary Committee of the grounds upon which we thought the Bill should be opposed. With regard to the London Building Acts (Amendment) Bill, the Council decided on November 15, 1904, to put forward in the present session of Parliament the whole of the amendments suggested by us, a resolution to refer the proposed amendments back for further consideration with a view to legislation being sought in the session of 1906, being defeated by seventy-five votes to twenty-seven. The work of many other committees of the Council is involved in the portion of the Bill not to be proceeded with in this session of Parliament, and some of the proposed amendments, especially those which would directly affect the public health, are as important as those in Part VIII., which has been referred to a committee of the House. We purpose reporting as soon as possible as to the course which we think should be followed with regard to the portion of the Bill which has been withdrawn. In the meantime it is probable that some modifications will be suggested in committee in the provisions of Part VIII. of the Bill, and we recommend—That the Parliamentary Committee do confer with the Building Act Committee as far as possible with regard to any further proposed modifications of the London Building Acts (Amendment) Bill."

Mr. Lewin Sharp moved, and Mr. E. Smith seconded, that the Fire Brigade Committee be included.

This was agreed to.

Captain Hemphill, Chairman of the Building Act Committee, complained of the high-handed proceedings of the Parliamentary Committee in emasculating the Bill without consulting his committee.

Mr. H. P. Harris said that they all felt that some amendment of the Building Act was desirable, but that the matter should be dealt with with some tact and discretion.

Mr. Howell J. Williams said that among builders and professional men there was a concensus of opinion that no amendment of the Building Act was required, but a wholesale revision—a codification. The recent Bill met

with the unanimous opposition of the building trade and the profession.

Dr. Cooper said that if the whole of the building trade was against the Bill, then he felt there must be a good deal in it which ought to have been passed.

Mr. Phillimore said that he felt, after hearing Mr. Williams's remarks, that they ought to bring up a Bill for an amendment of the Act next year. The suggestion of codification was an ingenious one, but it was not the business of the Council to find a convenient text-book for members of the building trade. But if an entirely new and codified Act were passed, there would probably be far more in it that Mr. Williams would object to than there was in the present Acts.

Mr. Shepheard, Chairman of the Parliamentary Committee, denied that his Committee were responsible for the emasculation of the Bill. It was the result of a conference at the House of Commons, held apart from any of the Council's committees.

Mr. John Burns, M.P., said they would never get any good legislative proposal through Parliament so long as they pursued the tactics which characterised the policy in regard to this Bill. Dr. Napier had damned the Bill with faint praise, and Mr. Shepheard had followed, and, had it not been for the fact that the City dared not take the responsibility, the fire clauses would have gone the way of the others.

Mr. Sidney Low said that the Bill was so complicated that it was impossible that it could be got through under the most favourable circumstances. The mistake made was in planning the Bill without the help of experts.

Mr. Shepheard challenged the accuracy of Mr. Burns's statement in regard to his (the speaker's) attitude, and said that while Mr. Burns knew a great deal about the fire clauses, he knew nothing about the other clauses of the Bill.

The matter then dropped.

Fires in Churches.—The Building Act Committee reported as follows :—

"Our attention has been drawn by the Fire Brigade Committee to a serious fire which occurred at 9.46 a.m. on February 26, 1905, at Christ Church, Down-street, Piccadilly, with the result that about one-third of the ground floor and the gallery were severely damaged. The Fire Brigade Committee state that the doors of this church, and of most other churches, open inwards only, and they point out that disastrous consequences would follow in the event of a fire occurring during a service and a panic ensuing. Under section 80 of the London Building Act, 1894, in all churches erected since the passing of the Act, all doors and barriers are required to be made to open outwards, and no outside locks or bolts may be affixed thereto. In the London Building Acts (Amendment) Bill a clause was inserted to make this provision apply to existing churches, and also to require that the doors should, if fastened during the time the buildings were in use, be fastened during such time by automatic bolts only, so as to open outwards by pressure from inside. This clause was, however, in the part of the Bill which by arrangement has been withdrawn, and as we propose reporting shortly what steps we think it advisable to take with regard to this part of the Bill, we have informed the Fire Brigade Committee that we do not think that any action can be taken in the meantime with a view to doors in churches being made to open outwards. We report the facts for the information of the Council."

Holborn to Strand.—The Improvements Committee recommended, and it was agreed :—

"That permission be given to the Underground Electric Railways Company of London to proceed at once with the construction of railway No. 4, authorised by the Great Northern and Strand Railway Act, 1899, and with the construction of such portion of railway No. 2, authorised by the Brompton and Piccadilly-circus Railway Act, 1902, as may be under Kingsway, upon conditions . . ."

The Council adjourned soon after seven o'clock.

THE EMPIRE THEATRE, LEICESTER-SQUARE.—We understand that the directors will close the theatre during a few weeks in the summer of this year in order to carry out some structural alterations required by the London County Council, and at the same time to repair the roof, improve the interior, and redecorate the auditorium. The theatre was partially built in 1882-3 as the Pandora, after plans and designs in the Moorish style by Thomas Verity, on a site of the eastern portion of Savile, or Ailesbury, House, which, as converted into the "El Dorado" Music-hall, a fire consumed to the ground-level in the night of February 28, 1865. Messrs. J. & E. A. Bull were subsequently commissioned to complete the work, and on April 17, 1884, the Empire was opened to the public. The house was altered for a "variety" theatre or music-hall three years afterwards by Messrs. Romaine-Walker & Tanner, the scheme of decoration of the interior being executed by Messrs. Campbell, Smith, & Co.

APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses :—

Lines of Frontage and Projections.

Hackney, North.—A wooden porch at No. 30, Clapton-common, Hackney (Messrs. Houghton & Davison for the executors of the late Mr. J. Crowfoot).—Consent.

Wandsworth.—One-story shops in front of Nos. 1 to 13, Fountain-villas, Garratt-lane, Tooting (Mr. W. Bartholomew for Messrs. J. H. Stanley & C. F. Newman).—Consent.

St. Pancras, East.—A one-story addition to St. Thomas' Church, Wrotham-road, Camden Town (Mesrs. J. E. K. & J. P. Cutts for the Rev. N. Handley).—Consent.

Lewisham.—The retention at a block of residential flats, No. 155, High-street, Lewisham, of a bay-window at the second and third floor levels, overhanging a roadway leading out of the southern side of High-street (Mr. C. A. Geen).—Consent.

Woolwich.—A porch and verandah in front of "Blair Athol," Southwood-road West, New Eltham (Mr. R. Baker for the executors of the late Mr. R. C. Davis).—Consent.

Hackney, Central.—An addition at the rear of No. 251, Mare-street, Hackney, to abut upon Ellingfort-road (Mr. J. Hamilton for Dr. J. D. Ross).—Refused.

Hammersmith.—The erection of a one-story addition to a proposed house on the north side of Dunraven-street, Hammersmith (Messrs. Boyton, Sons, Buckmaster, & Trevor for Mr. M. J. Allen).—Refused.

Hampstead.—One-story shops in front of Nos. 1 to 15, Imperial-parade, Edgware-road, Cricklewood (Mr. R. Plumbe for Dr. J. J. Acworth).—Refused.

Width of Way.

Bermondsey.—A boundary fence on the eastern side of a roadway leading from Abbey-street to Long-walk, Bermondsey, at less than the prescribed distance from the centre of such roadway (Messrs. Humphreys-Davies & Co. for the South-Eastern Railway Company).—Consent.

Width of Way and Line of Frontage.

Strand.—A deviation from the plan approved under sections 13 and 73 of the Act for the erection of a projecting clock and two oriel windows at Nos. 41 and 43, Wardour-street, Shaftesbury-avenue (Mr. H. M. Wakley for Mr. W. Clarkson).—Consent.

Formation of Streets.

St. George, Hanover-square.—That an order be issued to Mr. A. F. Faulkner, sanctioning the formation or laying out of a new street for carriage traffic to lead out of the western side of Ebury-street, Pimlico (for Mr. Willett).—Consent.

THE ARCHITECTURAL ASSOCIATION DISCUSSION SECTION.

THE tenth meeting for this session of the Discussion Section was held at 18, Tufton-street, Westminster, S.W., on Wednesday, March 22, when Mr. Alan E. Munby, M.A., read a paper entitled "An Information Bureau for the Products of the Building Trades." Mr. H. Gregory-Collins was in the chair.

Letters of regret at not being able to attend the meeting and expressing sympathy with the subject for discussion were received from Messrs. Max Clarke, Trant Brown, and H. D. Searles Wood.

The author suggested the formation of an information bureau on the products of the building trades industries as being necessary to architects, and pointed out that new methods of construction and the improvements in materials fifty years ago were few compared with the conditions of to-day, and compared the number of patents taken out in connexion with building materials, which now amounted to 2,000, as against 250 in 1853. It was impossible for the architect to be acquainted with all these new materials and methods of construction, and in practice it was usual to confine himself to well-known methods, hence the slowness in adopting new ones, which sometimes led to disastrous results. No means exist by which reliable information concerning the many novelties introduced can be easily and quickly obtained. The only information is to be obtained from the firms introducing the materials, and such information could hardly be regarded as sufficient or unbiassed. Therefore the formation of such a reliable and practical bureau would be of great service to architects. It would be the great "clearing house" of building materials. A collection of manufacturers' samples would be collected, classified, and reported upon in conformity with the data obtained. Statistics would be gathered from the work of similar societies, testing institutions, and experts, and an effort would be made to standardise building materials. Some kind of laboratory and testing apparatus conducted on practical lines would be necessary. A large space would be required for the collection of samples, and the author mentioned the use of the Agricultural Hall for the Building Trades Exhibition. It was suggested that the materials used in the construction of ordinary buildings should first be dealt with, and then those connected with special works. The information obtained would be primarily for the benefit of the members of the bureau. The author had made inquiries concerning the establishment of similar institutions in Germany, France, and America, and found out that extensive and valuable State-supported testing works were in existence in these countries, but he could not obtain any satisfactory information concerning a bureau. At the National Physical Laboratory at Bushey good work had been done. Most of the work of these institutions consisted in testing and research upon scientific instruments and matters concerning engineering.

The Royal Institute of British Architects and the London Master Builders' Association had at times done good work in connexion with the subject under discussion, but they did not cover the field in view. The Yorkshire Builders' Federation had established a Builders' Exchange at Hull for the collection of building materials, but without any reports thereon.

The direction of the bureau would be primarily in the hands of architects, contractors, and others, not manufacturers, engaged in the sale of building materials. There would be three sources of possible revenue, namely:—1, subscriptions of members; 2, fees from makers paid for reports on their products; and 3, rentals of spaces for materials exhibited. If 20 per cent. of London architects and 10 per cent. of London builders and contractors became members at an annual subscription of, say, one guinea, that would furnish about 850*l*., and if 10 per cent. of the remaining architects and 5 per cent. of the contractors in Great Britain became members at a subscription of half a guinea, an additional 700*l*. would be supplied, whilst the subscriptions available from those interested in the sale of materials would bring the income up to 2,000*l*. If in addition a rental could be charged to manufacturers exhibiting, there would be no difficulty on the financial side of the scheme.

At the conclusion of his paper Mr. Munby gave some figures of patents taken out for building inventions, as well as a list of important materials under trade headings, and the following returns from the census of 1901 :—

	County of London.	Rest of England & Wales.
Architects over 25 years of age..	1,294	3,550
Building employers	3,040	19,022
Manufacturers of bricks and tiles..	29	1,797
,, plaster and cement	19	156
Dealers in timber	443	2,759
,, stone and slate	98	1,419
,, ironmongery and hardware	601	4,790
,, bricks, cements, pottery, and glass ..	310	1,063

[This list represents individuals, not firms, and no allowance is made for agents.]

The discussion was opened by Mr. Louis Ambler, who proposed a hearty vote of thanks to the author for his interesting and suggestive paper. The information bureau was an excellent suggestion, and would help architects to specify more new materials and possibly avoid the failures in the use of new materials which now often happened. The speaker had found a difficulty in obtaining a satisfactory damp-proof lining for paper-hangings, and instanced the danger of applying new inventions, such as well fires, to old buildings. It was also a difficult matter for architects to be satisfied with the appearances of new bricks, as so much depended on the question of weathering. It was difficult to realise the size of the building that would be required for the bureau, but he wished success to the suggestion.

The vote of thanks was seconded by Mr. Geo. H. Smith, who warmly appreciated the efforts of the author in the scheme he had prepared for the establishment of a bureau.

The following members joined in the discus-

sion and supported the vote of thanks, viz. :—Messrs. A. H. Belcher, T. H. Russell, Frank Lishman, Stanley Towse, and the Chairman.

The Chairman then called upon Professor Simpson, of University College, to sum up the discussion. The Professor said he was sorry that he had not been able to read the paper before coming to the meeting, as he would have liked to have had an opportunity of doing so. He congratulated the author on the conciseness of his lecture, which he would summarise under the headings (*a*) Provision of a museum, (*b*) Testing of materials, and (*c*) The data obtained from testing and inquiries. The Professor thought the museum should be built in a central and easily accessible position. The expenses of efficiently testing materials would be heavy and somewhat difficult for such an institution as that suggested, but the classification and standardising of building materials and the collecting of all possible information concerning them would prove of the greatest value to all concerned. He thought great credit was due to Mr. Munby for putting forward the subject in such a practical manner, and hoped that any difficulties encountered in carrying out the scheme would not deter its coming into effective use. The paper brought before them very clearly the great changes that had taken place in recent years.

The vote of thanks to Mr. Munby for his paper, and to Professor Simpson for so kindly attending as Special Visitor, was put to the meeting and passed with acclamation.

Mr. Munby then briefly replied, thanking the members for hearing him so patiently, and mentioned that this was the first occasion on which his ideas of a scheme for establishing "an information bureau on the products of the building trade" had been placed before a public meeting.

ARCHITECTURAL SOCIETIES.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—At the rooms of this Society on the 23rd ult., Mr. Percy S. Worthington, of Manchester, read a paper on "Past Tradition and Modern Design"; Mr. G. B. Bulmer, President, in the chair. The lecturer said that when their Hon. Secretary invited him to read a paper before them, it had occurred to him that, as they already had a number of historical papers on their list, they might care to discuss some phase of the educational problem, and that of the relationship of theoretical study to actual practise in design might be interesting. In taking stock of the architectural position of to-day, the difference readily occurred to us between the conscious effort after design and the arbitrary choice of styles, in other words, individualism as opposed to national co-operation in design. We acknowledged how much was owed to tradition in the past, and asked ourselves how we might make the best use of our inheritance. We had heard a great deal lately about national degeneration, both mentally and physically, and one of the remedies most generally suggested was education. In our professional education we were certainly behind that of some other countries. Theoretically our haphazard system (or want of it) should be fatal to any excellence of the art. Practically he did not think we are in such a bad way. In fact, one was inclined to think that the work now being done was equal to, if not better than, the average work of any other country, France perhaps excepted. The student or apprentice of the XVth, XVIth, and XVIIth centuries was trained in the three arts of sculpture, painting, and architecture, and in after life practised all three. Buildings were books, then as now, and their measurement formed the self-education of the architect, whether he did it as Peruzzi did, with an eye to the composition of his architectural backgrounds, or as Brunelleschi did, with the definite idea of constructing his dome at Florence. With us in England it was different, but we could hardly afford to ignore their experience, and we might take it as an axiom that for the intelligent study and practise of design a knowledge of the history and architecture of past times generally was essential. Taste might be acquired to a degree by education and experiment without being inborn, and they were within the reach of all. As an example of trying experiments with antiquity one might cite that fine and distinguished work, the new Westminster Cathedral. With regard to planning, certain types of plans were still more or less traditional, that, for instance, of places of public worship, though even here one saw no reason why some modern type might not be evolved which might appeal to religious instincts as much as the old type.—At the same meeting the following were elected officers for the ensuing session :—President, Mr. G. B. Bulmer ; Vice-Presidents, Messrs. H. S. Chorley and R. A. Smithson ; Hon. Secretary, Mr. R. P. Oglesby ; Hon. Treasurer, Mr. W. H. Thorp ; Hon. Librarian, Mr. G. F. Bowman ; Council, Messrs. R. Marshall, F. Musto, A. J. Hill, H. A. Chapman, P. Robinson, and G. E. Reason.

LIVERPOOL ARCHITECTURAL SOCIETY.—Mr. Frank Rimmington read before a meeting of this Society, held at the Law Library, on the 20th ult., a paper on "Small Houses of To-day." He threw out a number of practical suggestions for the guidance of young architects in designing and planning suburban houses with a view of combining economy with the features of repose in external aspect, harmony in relation to surroundings, and the impression of home-like hospitality in the internal arrangements. Among other things he urged a preference for local material where suitable, and an avoidance of "original" ideas when not necessary to overcome a difficulty. He considered also that woodwork might be treated decoratively and inexpensively to a greater extent than was now the practice, and that sham effects ought to be avoided. There was much talk nowadays about the housing of the working-classes. The housing of the middle-classes was also a large problem. As it was the middle-class had to live in suburban streets of houses all of one type, where no attempt was made to meet the varying requirements of families. Architects could do much to foster the building of individual houses of an economical type, without lending themselves to the misleading notions sometimes put into print that this could be done at little or no cost.

SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.—A meeting of this Society was held, on the 23rd ult., in the Society's room, Leopold-street, Mr. T. Winder presiding. A lecture was delivered by Mr. W. J. Hale on the "Rectilinear" Period of Gothic Architecture. The lecturer commenced by defining the period of rectilinear architecture as extending from the year 1360 to 1547, that is, from the latter part of the reign of Edward III. to the close of the reign of Henry VIII. He gave a short summary of the history and condition of the country, and remarked that the period included the French wars and the loss of practically all French possessions, the Wars of the Roses in England, and the gradual increase of the power of the commoners. Also such important events as the introduction of printing, the translation of the Bible, and the discovery of America occurred within its limits. It was pointed out that the gradual improvement of building methods. and the greater appreciation and application of scientific knowledge, assisted the development of architecture and influenced the plan of the building. The lecturer questioned the statement that the geometric period was the summit of Gothic art, and that architecture declined after the XIIIth century ; he contended that Ruskin's argument concerning tracery was not convincing, as the assumption from which he started was not warranted by the actual facts. The skeleton forms on which the rectilinear tracery was based were shown by diagrams, and it was argued that the introduction of a vertical line into the window head was a natural step, which tied the composition of the whole window together in a logical manner ; and it was claimed that this method fulfilled Ruskin's aphorism, "Tracery must not be considered or imagined as flexible." With further diagrams the development of vaulting was traced from the rib to the true fan vault, which is peculiar to the period and to England, and the method of construction and the principle of its stability were explained. It was also contended that although in fan vaulting the rib and the panel were not separate, the method was truly constructional, and that the sinking of panels in the stone, with the ribs emphasising the lines of resistance, was a correct method of reducing the weight and ornamenting the surface. Attention was called to the influence of the chamfer plane on the form of the mouldings, common to the period, and allusion was made to the tapering outline which was produced by the repeated set-back of the buttresses, particularly those to towers, which gave a feeling of repose and stability. Other points of detail were noticed, and the importance of considering a design as a whole, rather than as a number of individual parts, was insisted on. Mr. Hale reminded the students that architecture meant sacrifice ; if they wanted their work to be successful it must be done for its own sake. Real, living, architecture never could be produced so long as mere monetary gain was the main object of the designer. He concluded by quoting the definition of architecture which Ruskin gives in his "Lamp of Sacrifice," "Architecture is the art which so disposes and adorns the edifices raised by man, for whatsoever uses, that the sight of them may contribute to his mental health, power, and pleasure." The lecture was illustrated by a series of lantern slides. On the motion of Mr. Mitchell-Withers, seconded by Mr. H. L. Paterson, and supported by Messrs. J. M. Jenkinson and J. R. Wigfull, a hearty vote of thanks was accorded Mr. Hale for his lecture. The lantern slides were exhibited by Mr. Atkinson, of University College.

EDINBURGH ARCHITECTURAL ASSOCIATION.—The Edinburgh Architectural Association visited Inveresk on Saturday, last week, under the leadership of Mr. Thomas Ross, F.S.A. (Scot.). Among those present were :—Mr. H. O. Tarbolton, F.R.I.B.A., President ; Mr. J. T. Baillie, Vice-President ; Mr. Colin B. Cownie, Hon. Secretary ; Mr. Hunter Crawford, ex-President ; and over forty members. The places inspected were the old bridge over the Esk, the church and churchyard, Inveresk House, Inveresk Lodge, and Halkerston Lodge. Particular note was taken of the Roman remains in Inveresk House grounds, and the leader of the party declared that, if the proprietors of the villa houses in Inveresk were to unite, they might, at very little expense, conduct some excavations on a very complete plan, and might make out the Roman town of Musselburgh so that people would be enabled to form a better idea of the importance of the place in Roman times, an importance which at present was not at all understood.

LONDON BUILDING ACT, 1894:

TRIBUNAL OF APPEAL CASE.

THE Tribunal of Appeal, under the London Building Act, 1894, sat at the Surveyors' Institution, Great George-street, S.W., on Tuesday, to hear an appeal by Messrs. Mackrell, Maton, & Co., on behalf of Messrs. Chessum & Sons, against the certificate of the Superintending Architect of Metropolitan Buildings, dated February 22, under sections 22 and 29 of the Act, defining the general line of buildings on the northern side of Monier-road, Bow, between Wick-lane and Smeed-road.

The members of the Tribunal sitting were Messrs. J. W. Penfold (Chairman), A. A. Hudson, and E. A. Grüning.

Mr. H. C. Biron, barrister, appeared for the appellants, and Mr. Andrews, from the Solicitors' Department of the London County Council, for the respondents.

The appellants are the freeholders of the land and building in Monier-road, which is upward of half a mile in length. With the exception of the small piece of land belonging to Messrs. Chessum, all the land fronting the road on both sides has been built over long since. In 1903 the appellants were desirous of building a house suitable for the residence of workmen on the site, and instructed their surveyor, Mr. T. Wilson, to prepare plans. On visiting the site Mr. Wilson found that, with two exceptions, all houses in the road which stood at the corners of intersecting roads had been built up to the pavement line. On the opposite side of the road all the houses for a considerable distance down the road are built to the pavement line. The road at this point is a 40-ft. road, and plans were prepared for the building to be erected up to the pavement line. The building was commenced in June, 1904, and considerable progress had been made before September 29, when the solicitor to the London County Council wrote objecting that the building had been erected beyond the general line of frontage. An application was then made to build in advance, but was refused. The Superintending Architect then defined the line, but Mr. Wilson raised the objection that the Superintending Architect had not before him a plan of the whole road, showing the corner houses all the way down the road, except two built up to the pavement line, and protested against such definition. Messrs. Chessum, therefore, appealed against the certificate, contending that the general line should be defined up to the pavement line.

The Tribunal, after hearing the appellants' case, came to the conclusion that the certificate of the Superintending Architect could not be upset. They, therefore, dismissed the appeal, with five guineas costs. They did not

call upon Mr. Andrews, but expressed a hope that he would convey to the London County Council their view that the building, as erected by the appellants, should be allowed to remain, inasmuch as, in their opinion, its position did not involve any injustice to the public.

Fifty Years Ago.

MASTERS AND MEN.—NOTICE TO LEAVE WORK.—An important case was heard in the Sheriff's Court on Saturday, March 17, in which two workmen, G. Trollope and J. Griffiths, carpenters, were the plaintiffs, who sought to recover a quarter of a day's pay, according to the usual custom of the trade, viz., a quarter of a day's notice or a quarter of a day's pay. The plaintiffs said they had been at work about eighteen weeks, in the employ of Messrs. Brass & Son, builders, at the London and South-Western Railway, and were discharged on Saturday at four o'clock without any notice, which being contrary to the usual custom of the trade, they summoned Mr. Brass for a quarter of a day's pay. The defendant stated that about two years ago he decided on not giving his workmen any notice whatever on being discharged from his employ; and also stated that as he paid his men up to half-past five o'clock on Saturday he ought not to give notice. The plaintiffs urged that that had nothing to do with the case, as leaving off at four o'clock on all Saturdays constituted a day, and was acknowledged by the trade in general, and they considered they ought to receive a quarter of a day's notice before four o'clock, or a quarter of a day's pay, as it was essentially necessary that they should have time to put their tools in order, as they are expected to have them so when they go to work for any employer. The Judge agreed with the plaintiffs that they ought to have received the usual notice, and gave judgment for the plaintiffs, with costs. — The *Builder*, March 31, 1855.

Illustrations.

CANTERBURY CATHEDRAL.

THIS view, showing a portion of Canterbury Cathedral from a south-west position, is another of the drawings executed by Mr. J. B. Fulton as a holder of the Travelling Studentship of the Royal Academy.

It gives an effective view of the central tower, which is now undergoing repair. The drawing shows part of the late (and much restored) nave, and in the distance is seen a portion of the picturesque Norman turret of the east transept.

ANCIENT BUILDINGS AT FAMAGUSTA, CYPRUS.

THESE illustrations are from photographs lent by Mr. B. Stewart, who is well acquainted with the locality, and has photographed a good many of the monuments there. In reference to these illustrations, Mr. Stewart writes:—

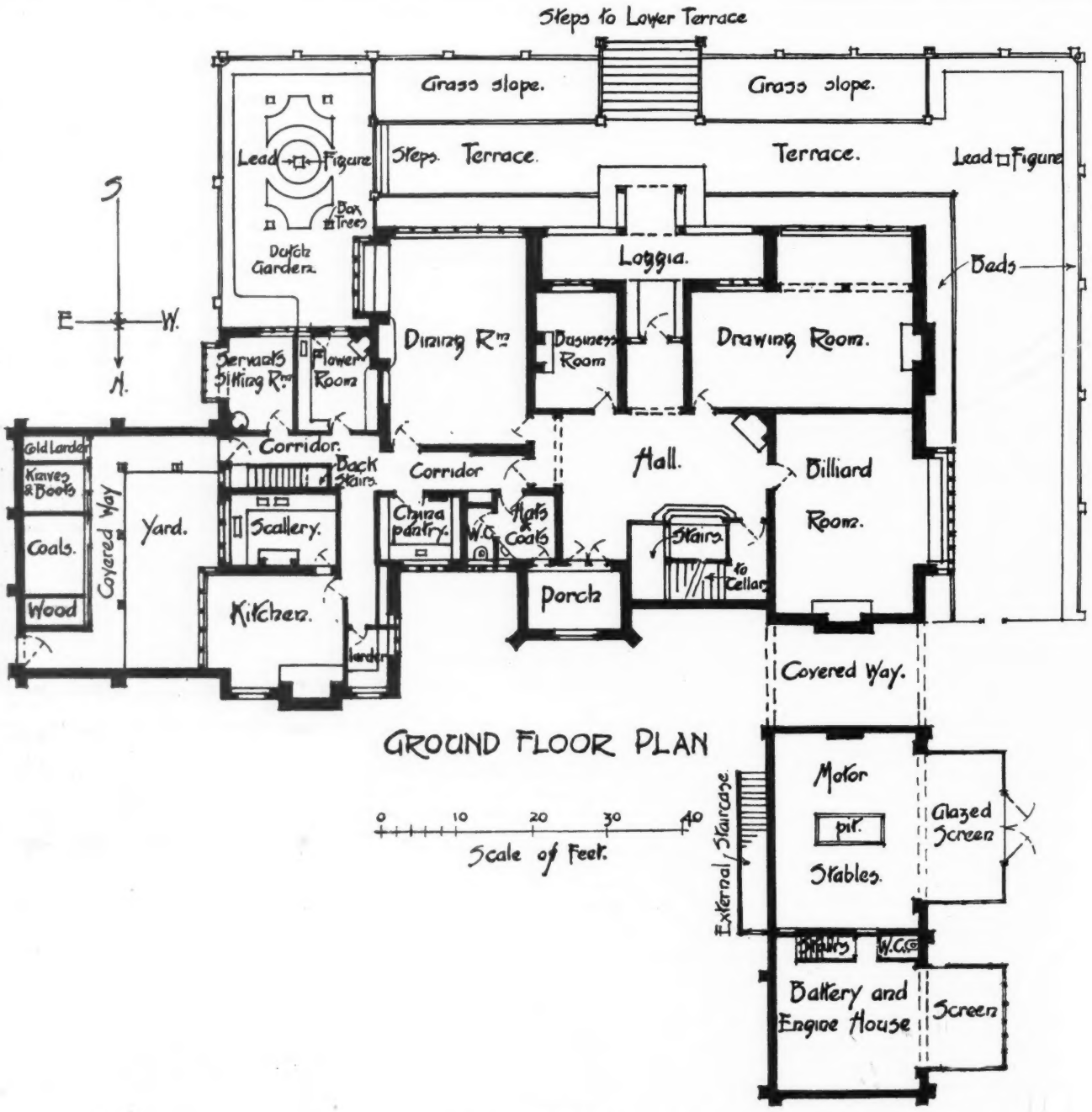
"Famagusta was first built by Ptolemy Philadelphus (B.C. 285—247), when it was known as Arsinoe. The Franks gave it its present name of Famagusta, and it was fortified in 1300 by Henry II. and was seized by the Genoese in 1373. The Venetians took it in 1489, and between 1498 and 1544 the fortifications were completed much as they appear to-day. The Cathedral of San Sophia was built 1300—1312 as a Latin church, and then dedicated to St. Nicolas. When the Turks took Famagusta from the Venetians in 1570, they turned the church into a mosque and gave it its present name. The tracery of the west front and particularly the west window is very fine, and owing to the very dry climate is in a wonderful state of preservation. The glass in this window is quite modern, and is the only one with glass in it. The church of SS. Peter and Paul is in the best state of preservation, being further removed from the effects of the Turkish bombardment than most of the other churches, though earthquakes have assisted to complete its destruction. Traces of frescoes which once enriched its interior can still be seen, as also at some of the other churches.

Famagusta is now a desert dotted all over with the ruins of grand buildings, a melancholy though picturesque wreck of its former grandeur."

GREAT HOUSE COURT, EAST GRINSTEAD.

THIS house has been erected for Mr. Geo. Peploe Forwood. It is beautifully situated on the outskirts of the town, with lovely views over Ashdown Forest.

The materials used were old Horsham stone tiles and old red roofing tiles for the roofs, the facing were bricks brought from Petersfield,



Great House Court. Plan.

Hants; black flints squared were also introduced. Old oak beams formed the framing of the staircase gable, averaging in thickness 8 in. by 4½ in., the whole of the woodwork being pinned and framed together in the old way. The walls were 16 in. throughout.

A feature in the house was the introduction of Sussex marble stone to the open fireplaces and in place of window boards to some of the windows, this stone being obtained from the property of another client.

The hall, staircase, and first floor were panelled in oak; this, with the staircase newels, treads, and balusters, was formed almost entirely from the centre post, bearing date 1730, of an old mill which stood just outside the town.

Mr. A. W. Selater, of Oxford-street, was responsible for the electric lighting, fittings, and plant. The iron casements and lead glazing were provided by Mr. J. Jennings, of Clapham-road, London; the heating by Messrs. John Grundy, of Islington. Mr. Rice, of East Grinstead, was the builder. The architect was Mr. Turner Powell, of London and East Grinstead.

NEW STOCK EXCHANGE, JOHANNESBURG, S.A.

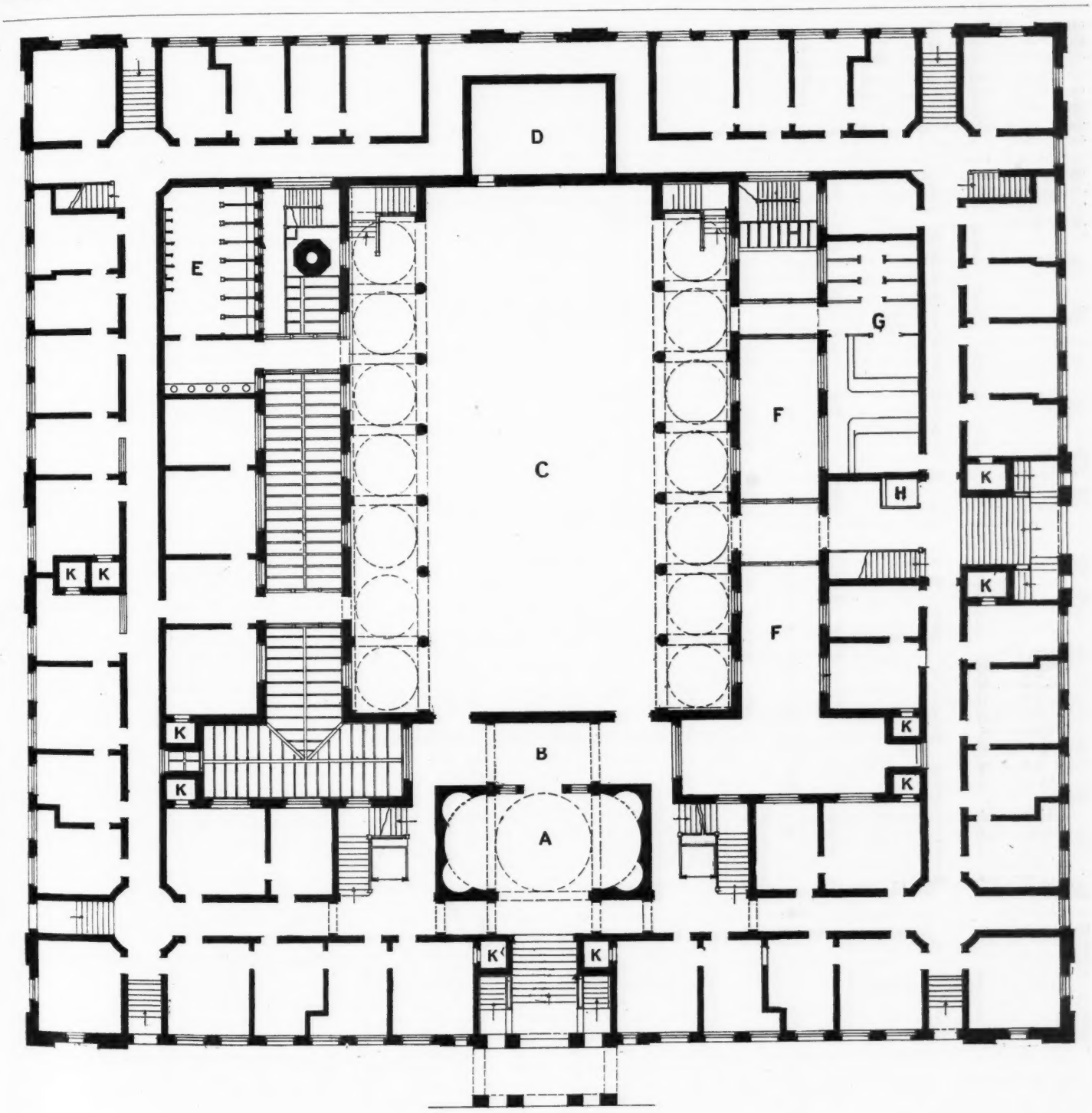
THIS building has been erected at a cost of 120,000*l*. The four external elevations are treated with red brick, dressed and rock-faced stone dressings, mouldings, pilasters, ashlar, etc. Internally the walls of the exchange hall are lined with marble and ornamental tile dado. The columns are scagliola with bronze bases and fine terra-cotta caps. The arched ceiling is in canvas plastic.

The building contains about 225 offices, with lavatories on all floors. It is heated throughout by steam radiators.

Messrs. W. Leck and F. Emley, of Johannesburg, were the architects, and Mr. C. Woods (Johannesburg) the contractor.

ENGINEERING SOCIETIES.

THE JUNIOR INSTITUTION OF ENGINEERS.—Visits of this Institution have recently taken place to the Brockie-Pell Arc Lamp Works, Worship-street, London, and to the New Ritz Hotel, Piccadilly, where the Skeleton-cage system of construction was seen. At the former establishment the members were received by Mr. James Brockie, the inventor of the Brockie-Pell Lamp, who gave an account of its development and construction, and described generally the necessary characteristics of an efficient arc lamp. In the workshops a number of lamps of different types were shown in course of manufacture, and in the testing-room demonstrations were carried out to illustrate the effect on the arc of two methods of regulation, namely, differential (main coil and shunt coil working in opposition) and shunt coil only; the result shown being that with the shunt coil alone the current might be varied very considerably without affecting the length of the arc, whereas



REFERENCES:—

A—Entrance hall.
B—Members' lobby.
C—Exchange hall.
D—Safe deposit.
E—Lavatory.
F—Open areas.
G—Post-office.
H—Lift.
K—Strong rooms.

(The remainder of the rooms are offices.)

New Stock Exchange, Johannesburg. Plan.

with the differential method the variation in length of the arc was very considerable with the same change in the current strength. The two lamps were run in series so that each had the same current passing through it. The party visiting the new Ritz Hotel were shown over by Mr. J. P. Bishop (joint architect with Messrs. Mewes and Davis) and Mr. Adam Hunter. The hotel, which is being constructed by the Waring-White Building Co. for the Carlton Hotels Co., is situated in Piccadilly adjoining the Green Park, and occupies the sites of the Old Bath Hotel and Walsingham House. It has a frontage to Piccadilly of about 230 ft. and an average depth of about 100 ft. The height from the street level to the top of the building is about 110 ft., and the basement floor is 20 ft. below street level. There are ten floors, including the basement, lower ground, and ground floors. The front of the building is carried up to within 2½ ft. of the roadway in Piccadilly, and an arcade formed over the pavement. This arcade will form a special feature of the building. The foundations are on the London clay at a depth of about 26 ft. below the roadway. A feature of special interest is the method which has been adopted for constructing the building. The type of construction is known as the "cage skeleton construction." The new Ritz Hotel affords the largest example of the type in this country. A skeleton of steel framework, capable of carrying the whole dead weight of the walls, floors, and roof, in addition to the live loads and wind pressure, is being erected and is at present nearly completed. The walls are supported on girders at the level of each floor of the building. They carry no loads but simply act as a protection from the weather and for decorative treatment. The total weight of the building with the live loads is carried on the steel columns. Generally, the columns rest upon cast-iron base plates, about 3 ft. to 4 ft. square, which in turn rest upon a grillage of steel beams imbedded in cement concrete of sufficient area to distribute the load over the ground with a minimum depth of foundation. Cantilever foundations have been adopted for some of the columns next the adjoining buildings so as to retain the whole of the foundations within the site. Some of these foundations may be seen in the basement. The building is of fireproof construction throughout. The whole of the steelwork will be encased in masonry or concrete. The floors and roofs are being constructed of concrete steel on the Columbian system.

Correspondence.

SWINDON SCHOOLS COMPETITION.

SIR,—Will you kindly allow me through your columns to draw the attention of members of the R.I.B.A. to this competition?

The Competitions Committee have urged the Swindon Education Committee to modify their conditions which are very unsatisfactory. As the promoters decline to modify these conditions, members of the Institute are requested to refrain from competing.

JAMES S. GIBSON.

Chairman of the Competitions Committee of the Royal Institute of British Architects.

A QUESTION OF CONSTRUCTION.

SIR,—With reference to the very excellent working drawing of No. 33, Dover-street, published in your issue of March 18, may I inquire whether the tailing-in of the steel joists at each floor level is relied upon for the support of the oriel bays? The steel angle shown at the back of the corbel stones is evidently insufficient to hold them down.

My reason for the inquiry is that, where working drawings are published, it seems desirable, as the architect's sole note suggests, to show all the requisite details of construction.

ALPHA.

*** Mr. Gibson writes:—"The 9 by 7 by 58 lb. steel joists above the first floor level are bolted down at the ends to the main girders, and the 4½ by 4½ angle iron at the back of the oriel stone is also bolted to the same girder. The supports for the upper portions of the oriel windows at the second and third floor levels are tailed back into the main walls of the front, and the whole arrangement has made a satisfactory form of construction."

"BANISTERS."

SIR,—From Mr. Harris's letter in the current number of the *Builder* one might gather that it is only in recent years that the word "baluster" has been supplanted by the corrupted form "banister." But, as a matter of fact, this "vulgar term for baluster," as Joseph Gwilt defines "banister" in the Glossary at the end of his "Encyclopædia of Architecture," is not by any means a novelty. In "The Rivals," first acted in 1775, Sheridan makes Fag say of Sir Anthony Absolute (Act II., scene 1), "he come down stairs eight or ten steps at a time, muttering, growling, and thumping the banisters all the way"; and a slightly earlier example is to be found in Horace Walpole's "Castle of Otranto," first published in 1765, where we read, in Chapter 5, of "the uppermost bannisters of the great stairs."

BENJAMIN WALKER.

TESTIMONIAL TO MR. HENRY ADAMS.

SIR,—Mr. Henry Adams is retiring from the Professorship of Engineering and Surveying at the City of London College, which he has held for upwards of thirty-five years. A committee of some of his former pupils has been formed, and has met at the Surveyors' Institution, for the purpose of commemorating the occasion. It is desired to communicate with as many of his old pupils as possible, and, for this purpose, I should be very greatly obliged if you would give publicity to the matter by publishing a note, or this letter, in your valuable columns. Mr. Adams has lectured to about 4,000 pupils, the great majority of whom cannot now be traced except through the courtesy of the Press. Would any of them who see this announcement kindly communicate with me? Their signatures only to an address are sought.

J. L. CROUCH,
Chairman.

29, Basinghall-street, E.C.

COMPETITIONS.

CHURCH, NEW SOMERBY, GRANTHAM.—Mr. G. H. Fellowes Peynne, the assessor in this competition, has selected as the best the plans of Mr. Bertram H. Tarrant, 65, Hosack-road, Upper Tooting. One hundred and four sets of plans were sent in, the authors of two of which were invited to send in amended plans, Mr. Tarrant's being finally selected.

SHIRE HALL, BURY ST. EDMUNDS.—The award in this competition is as follows:—First premium, No. 6, 50*l*. (author, Mr. Arthur Field, 211, Woodbridge-road, Ipswich). Second premium, No. 10, 30*l*. (Mr. O. Mahomed and Mr. B. Tarrant, 3A, Bank-buildings, Balham, S.W.). Third premium, No. 14, 20*l*. (Mr. S. Warwick and Mr. H. Hall, 98, Lancaster-road, W.).

BOOKS RECEIVED.

AN ELEMENTARY HISTORY OF DESIGN IN MURAL PAINTING. By N. H. J. Westlake, F.S.A. Vol. II. (James Parker & Co. 32s.)

The Student's Column.

TYPICAL STRUCTURES IN CONCRETE-STEEL.—XIII.

MAISON DE RAPPORT, AVENUE RAPP, PARIS.—(*Continued*).

THE roofing of this building is constructed in a manner generally similar to that adopted for the floors and ceilings, and between the upper and lower surfaces a cushion of air is confined, which has the effect of keeping the rooms immediately below moderately cool in summer and warm in winter. If desired the spaces in such a roof covering could be filled with non-conducting material for the purpose of providing further resistance to the conduction of heat from or into the building.

With the exception of the mansard slopes, the roof surfaces of the *maison de rapport* are flat, and, with the object of preventing the formation of cracks in the concrete-steel roof panels, a special method of construction was adopted, the principle of which can best be explained by reference to Figs. 94 and 95, the former representing the effects to be avoided and the latter the effects of the method actually followed.

The top diagram of Fig. 94 shows two stiffening ribs of similar construction to that illustrated in Fig. 91 *ante*. Between the ribs is a plate of armoured plaster wedged in position, as before explained, for the purpose of forming centring for the deposition of the concrete-steel panel. This plaster plate, being deflected under the weight of the material deposited thereon, assumes a curved form, as represented diagrammatically in the sketch. The result is that when the concrete layer has been finished with a level surface the slab has a section like that in the middle diagram of Fig. 94, and when used by workmen, or by the occupants of the house desiring to sit in the open air, the panels will be deflected at the middle, as in the bottom sketch, causing, or tending to cause, cracks at the points indicated, where the upper part of the section is in tension, because the connected series of panels constitutes a continuous beam. Although such cracks might not be dangerous from a structural point of view, they would certainly permit the percolation of water in rainy weather, and upon a roof so constructed it would be wise to lay a covering of zinc or lead to guard against inconvenience and damage in the rooms below.

A better system of construction, and that followed in the *maison de rapport*, is illustrated in Fig. 95. Here the upper diagram shows two ribs, which are similar to those in Fig. 94, but have triangular flanges at the top as well as at the bottom. Between these the plate of reinforced plaster is wedged in such a way that it presents a convex when viewed from above. When the concrete is deposited this arch is depressed slightly at the centre, but still retains a curved form, and when the top surface of the roof panel has been levelled off the section resembles that in the middle drawing of Fig. 95. The imposition of load upon the centre of one arch naturally has the effect of causing depression at the crown, but cannot result in rupture at the abutments, and the elevation of adjoining arches of the structure by expansion, as suggested in the bottom sketch of Fig. 95, is equally harmless.

As shown in Fig. 87 *ante*, the roof is of the mansard type, the slopes being built of reinforced brick and consisting of two walls with an intervening air space, intended, as in the case of the flat surfaces, to modify the influence of exterior climatic conditions. Upon the outer brick wall of the roof slope that faces the Avenue Rapp enamelled tiles are fixed by means of Portland cement mortar. If preferred, it is easy to provide for covering the exterior face of such a roof slope with slates, as was done at the Hôtel Ritz; or the brickwork may be coated with cement mortar finished by pressing into it a thin layer of stone chippings coloured to any desired tint. These chippings harden the face of the cement coating, and, with suitable colouring material, give the appearance of a tiled or slated roof without involving the cost of maintenance that is always necessary in the case of roofs covered with such materials.

The rain-water gutters at the foot of the mansard slopes are formed in reinforced cement mortar moulded in forms suitable to the architectural features of the building and tinted in black ochre, thus giving an appearance resembling that of slate or cast iron. Gutters are also formed in the flat portions of the roof system so as to provide amply for carrying away rain water.

The dormers which occur in some parts of the mansard roof are built of reinforced brick, and the reveals are of the same construction. Those overlooking the *grande cour* are finished by a rendering of cement coloured to the required tint, while those on the main façade are covered with ornamental stoneware reinforced by steel wire. All skylight openings in the roof are constructed in reinforced brick.

The reinforced brick walls of the building, as already mentioned, consist of an inner and outer skin with an interior air space. Upon the courtyard the outer wall partition is built of white brick, relieved at some parts with red brick and at others with enamelled brick, either plain or moulded, as required to suit the general scheme of the façade. The interior partition is in ordinary brick, which is employed also for the headers which bond the inner and outer skin of the construction. In the principal façade upon the Avenue Rapp the outer skin of the hollow wall is built of moulded stoneware blocks reinforced in the same manner as that employed for ordinary bricks.

The interior walls of the house are of two kinds—one built hollow and the other consisting of a simple partition of brick 11 centimetres thick. All the inner surfaces of the outside walls and of partition walls are finished suitably to the purposes for which the various apartments are intended.

Both the *grand escalier* and the *escalier de service* are formed with an inclined plane of reinforced cement mortar 5 centimetres thick. Above the surface of this slope are two stiffening

ribs, one placed at each side and corresponding with the customary "string boards." The treads, also of reinforced cement mortar, are moulded so as to give a channel section, and, of course, are set in position with the flat side uppermost. Above the *grand escalier* is a water tank for the operation of the passenger lift, the tank being constructed of reinforced brick and cement.

A distinctly novel arrangement in this building is that some of the chimney flues, as well as all the ventilation ducts, pass entirely within the space afforded by the hollow wall construction. Between the inner and outer walls two series of metal lathing are fixed at the required distances apart and the lathing is plastered over to form the conduit. In this way all flues required for the rooms in the front of the house are carried up inside the walls of the principal façade, while others are situated in the thickness of the inner walls. The walls containing smoke flues also support the floors of the building, an arrangement that would clearly be inadmissible in ordinary construction. The flue of the hot-air stove is of similar construction, and close to it are situated the water pipes and drain pipes proceeding to and from various parts of the house. The drain pipes are of Doulton ware placed in plastered casings formed between the inner and outer walls of the building and embedded in cement.

We now direct attention to a most interesting constructive feature, consisting of a portion of the building which overhangs the *grande cour*, as indicated by the shaded area in Fig. 96. This projecting angle, of which the bases measure approximately 7 metres and 3·5 metres, virtually constitutes a great corbel six stories in height and extending from the first floor to the top of the house. Beneath it is a space giving access to the *remises*, or coach houses, as indicated on the ground plan, Fig. 96. The column, which is shown in elevation in Fig. 97, is of stone, and appears to support a very great load. But in reality it has no work to do, and might have been omitted entirely without impairing the stability of the structure. It was included chiefly for the sake of appearances, both structural and architectural. As a matter of actual fact, the column was not put in its place until the whole of the work above had been completely built.

Fig. 97 has been drawn with the object of making clear the principle involved in this bold piece of structural engineering. The lower portion of the corbel is represented by the lines AB, BC, these being the lower boundaries of the brickwork which actually transmits the loads to the walls of the main building. The upper portion of the corbel is not shown in Fig. 97, as it was not necessary to occupy space by continuing the drawing so as to include all the stories of the house. It will be understood that, as the two outer walls of the corbel are of reinforced brick, they have been thoroughly connected by means of steel network with the walls of the main building, to which they are further tied by the floors of stories Nos. 2 to 7. These floors, permeated by steel network connected with the network of the walls on every side, are in effect horizontal, very wide, and shallow tie-beams. Further, we have the cross walls, shown in Fig. 96, and these also are tie-beams, very deep and thin. Taking into account the vertical outer walls, the inner cross walls, the horizontal floors, and the roof construction, this projecting angle of the house is seen to be nothing more than a huge cantilever braced in the most efficient manner, and quite independent of any support beyond that derived from the main walls to which it is secured, and with which it is incorporated. The foregoing explanation relates only to the part above the lines AB, BC in Fig. 97.

We will turn next to the details drawn in broken lines. In the first place we have two triangular wall surfaces, which, taken together, form the area A B C in Fig. 97. These portions of the wall are in reality suspended from the upper part of the reinforced brickwork, and are thoroughly bonded with it in the ordinary way, as well as by the network of steel wires passing continuously through and between the bricks. The floor of the first story is also suspended at the outer edges, while along the two inner sides it is supported by the walls of the building as the other floors are supported. In this drawing the suspended portions and the column are merely drawn in dotted lines for the purpose of ready identification. When the great console, with its dependent walls and floor, had been built, the floor of the first story, with the whole of the six stories above, remained suspended in mid-air until the stone column was erected in its place to give this portion of the building a reasonable appearance of security, and to insure outward compliance with the form of construction to which the eye is accustomed. Although the designer entirely disregarded the support afforded by the column, it must not be forgotten that this member is really capable of taking the weight of the projecting angle and, being placed beneath it, must take its share of the load, thereby relieving the reinforced brickwork of strain and adding very materially to the strength of the construction as a whole.

Another singular piece of design is to be found in an arch, of 7 metres span, over a large window of the third story. This arch appears to support a gallery above, but in reality does nothing of the kind, being supported by the gallery, which is about 4 metres high and, stretching from side to side of the façade, is practically a braced girder of great strength.

For lighting the basement, pavement lights are provided in the *grande cour*, the *petite cour*, and the *courette*. Pavement lights of the kind ordinarily used in Paris having frames of T bars, as in Fig. 98, naturally block an unnecessarily large proportion of the light available. To obviate this disadvantageous feature the system illustrated in Fig. 99 was introduced by M. Cottancin. The framework consists merely of steel wires 4·4 millimetres diameter, which pass along grooves in the sides of the glass panels and are woven together so as to consitute a network capable of supporting all the weight likely to come upon the construction. As the wires are of small diameter, they obstruct very little light, and, being laid in the circular holes formed by two semi-circular contiguous grooves, the glass panels can be brought close together and ojinted with cement. The joints have the effect of refracting the light somewhat in the manner accomplished by the Luxfer prisms, although they can scarcely do this so efficiently.

The kitchen, sculleries, and other domestic offices, as also the lavatories throughout the house, are finished with wall surfaces in white enamelled brick. No wall tiles or other materials for forming a veneered wall surface have been used, the architect righty believing these to be undesirable because of their liability to become detached in course of time. The pantries have walls of reinforced brick and cement.

The kitchen water tanks are built of enamelled stoneware tiles moulded with grooves, like those of the glass panels in the basement lights, and similarly are connected with wire reinforcement and jointed with cement. The interior face of each tank is formed by the enamelling of the tiles, and the outside is rendered in cement or plaster.

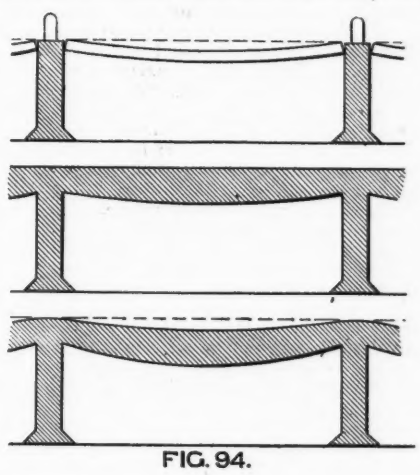


FIG. 94.

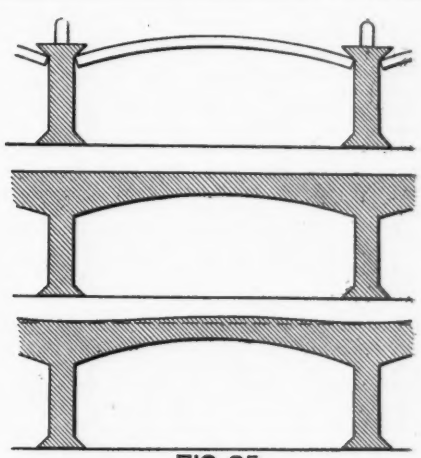


FIG. 95.

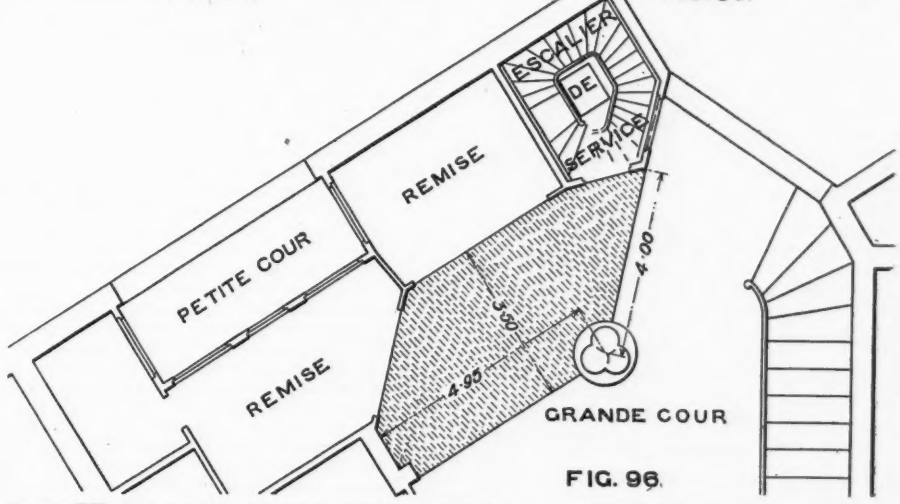


FIG. 96.

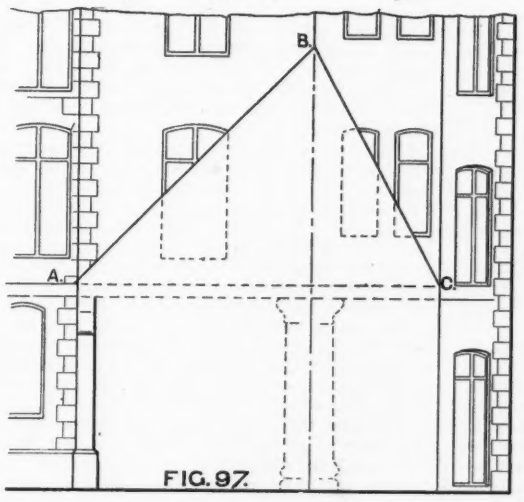


FIG. 97.

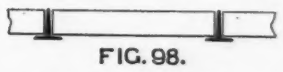


FIG. 98.

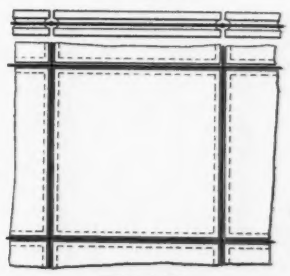


FIG. 99.

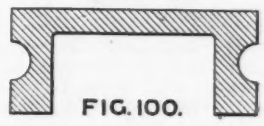


FIG. 100.

Illustrations to Student's Column.

Some walls, in parts of the building where it was particularly desired to provide resistance against the conduction of heat, are constructed of hollow earthenware blocks of the section illustrated in Fig. 100. The side of the block, which is at the top in this drawing, forms the outer face of the wall, and the space inside is filled with non-conducting material. The interior wall surface can then be finished in any manner desired. The blocks are moulded with grooves for the reinforcing network, and can easily be set in walls constructed of ordinary brick.

The building described above is a good example of reinforced and also of fire-resisting construction. One excellent feature is represented by the strength of the flat roof terraces, upon which firemen can move freely and portable fire engines may be employed without fear of causing damage, in case of fire breaking out in any adjacent building.

OBITUARY.

MR. NICHOLL.—We regret to announce the death on March 21, at his residence, No. 1, Caversham-road, London, N.W., of Mr. Samuel Joseph Nicholl, aged 78 years. Mr. Nicholl was a pupil of J. J. Scoles; he was the Royal Institute of British Architects' Medallist (Essays), 1845, and was elected Associate in 1847. He was architect for the reparation, in 1884, of the Roman Catholic Church of Our Lady in Grove-road, St. John's Wood, for which he designed the new reredos across the whole width of the nave, the stone and alabaster altar, and the parquetry laid on the floors of the sanctuary and chapels. We have illustrated his designs for the Church of Our Lady of the Sacred Heart, Wellingborough, having sittings for 400 persons, with a sacristy and residence, after the late XIVth century style (November 6, 1886), and the Roman Catholic Church of St. John the Baptist, Brighton, of which he remodelled the entire interior, opened out the roof, added the bell-tower and chapel of the Holy Rood, and substituted a wide and enriched arch for the porch (May 21, 1887, and September 1, 1888, interior view). He prepared the plans and designs for completing the altar, and for the reredos, of the Roman Catholic Church of St. Charles Borromeo, in Upper Ogle-street, Marylebone, 1902. In collaboration with the late J. T. Willson, he was architect, fifty years ago, for the enlargement and virtually the rebuilding, after a plain Romanesque manner, of the Roman Catholic Chapel of St. John, at Lincoln, and the schools. In the interval of about ten years from 1859, during which he and J. T. Willson worked together, Mr. Nicholl was joint architect with him of the chapel and lodge at St. Patrick's Cemetery, Low Leyton (1861); of the Roman Catholic churches of St. Charles, in Upper Ogle-street, mentioned above; the Sacred Heart, at Accrington; St. Mary, Turnham Green; St. Katharine, West Drayton; and of one at Bilbao, Spain; of the schools for St. James's Roman Catholic Church in Spanish-place, W.; and schools at Wapping, Little Crosby, and North Hyde, Middlesex; and for the enlargement, with improvements, etc., of the convents at Chelsea and Atherstone. At Mr. Willson's request he became his co-adjutor, 1896, for the girls' schools of the Dominican Priory, Haverstock Hill, N.W., and, in 1862, made, conjointly with him, the designs for the memorial at Portsmouth to Sir Charles Napier, and of that which commemorates the cruise of the *Chesapeake*.

MR. WALLER.—We regret to announce also the death, on March 22, at his residence in Barnwood, near Gloucester, of Mr. Frederick Sandham Waller, aged 82 years. He was elected a Fellow of the Royal Institute of British Architects in 1856, and served as a member of the Council. Mr. Waller and his son, Mr. Frederick William Waller, constituted the firm of Messrs. Waller & Son, of College Green, Gloucester, architects and surveyors, which was dissolved in November, 1901. The late Mr. F. S. Waller was Resident Architect to the Dean and Chapter of Gloucester Cathedral; in 1847 he carried out the first restoration of Abbot Serlo's crypt, 1089-1100, and the extensive repairs and restoration of the general fabric in 1873-90 were effected under his directions and superintendence, mainly after the designs prepared by Sir G. G. Scott. The plan which we published on December 5, 1891, in No. XII. of our Series, "The Cathedrals of England and Wales," was made from plans and surveys prepared by Mr. Waller, and he compiled the account of the structure and history of the cathedral which we were enabled to publish in that number of the *Builder*. In our number of July 17, 1897, No. VIII. of our Series, "The Architecture of our Large Provincial Towns," we gave an illustration of the firm's designs, after the Early French Gothic style, for the Municipal Technical College and School of Art, Green Hill, Derby, 1876-7, to which additions were then being made by them. Mr. Waller designed the canopied reredos, of richly-carved stonework, for St. Michael's Church, and the carved-wood reredos (1889) for the Church of St. Mary-de-Crypt, both in Gloucester, and he restored the wooden screen of St. Mary's Church, Beverstone. He was architect of the Free Public Library and of the new building for an extension of the technical schools in Gloucester, for the restoration of Oldbury-on-Severn parish church, after the fire in 1897, and of the parish church of Naunton, Gloucestershire; of the cottage hospital at Burford, Oxfordshire; for the enlargement of the Grammar School, Cirencester; and of the additions, with science department, to the Ladies' College, Cheltenham. The firm were appointed architects of the new town hall erected on the winter garden site, Cheltenham, which was opened in December, 1903. Mr. Waller, in conjunction with Mr. H. Medland, prepared the plans and designs for the Infectious Diseases Hospital at Over, in the county; and the firm was architects of the nurses' home, recently added to the Gloucester Infirmary. Mr. Samuel E. Waller, the painter, who died two years ago, was, we believe, a son of the deceased.

MR. T. D. BARRY.—We regret to have to record the death of Mr. T. Denville Barry, of Liverpool, well known for many years there and in the Lancashire neighbourhood as an accomplished architect of the Gothic revival school. Mr. Barry was a native of Cork (son of Dr. Barry, of that city), but came to Liverpool in 1845, and entered into partnership with another well-known local church architect of the time. After a few years he dissolved partnership, and went to Norwich, where he was City Surveyor, and returned to Liverpool in 1872, and continued the practice of his profession in partnership with his sons. For the last seventeen years he has been living in practical retirement from his profession. He passed peacefully away, in his ninetieth year, on the 4th inst., at his residence, Aigburth. During his life he was President of the Liverpool Architectural Society, and his services were at one time in great demand for arbitrations. Among the many buildings which Mr. Barry carried out may be named the Hope-street Unitarian Church at Liverpool (Brown & Barry), St. Andrew's, Southport, and St. Peter's, Birkdale; at Norwich he carried out the Great Hospital Industrial School and the Thorp Hamlet School and parsonage, the Corn Exchange, the Fish Market, and the Cattle Market; also the Equitable Insurance offices; also silk mills, factory, warehouse, and distillery; also the Exchange, the Waterloo, and the Star Hotels. In London and neighbourhood he built Tulse Hill Church, Clapham-road Church and Schools, and Orphan Working School Church; also the Whitechapel Workhouse. Mr. Barry was also architect for the laying out of numerous cemeteries and their chapel and lodge erections, including Toxteth Park (Liverpool), St. Helens, Preston, Wigan, Heywood, Atherton, Warrington, Runcorn, Bakewell, and Henley-on-Thames. He was engaged a great deal at the Isle of Man, and was architect for the parish churches of Peel, Glenmaye, Patrick, and Port St. Mary; also of the Presbyterian Church at Ramsey. He was also architect for the police offices and fire-engine station at Leamington, St. Paul's Schools, Grange, and Trinity Schools, Coventry; the College Chapel, Didsbury; St. Matthew's and St. Bartholomew's churches, Bolton; the Congregational Church, Dublin; memorial church to Bishop Shirley, Derby; Fisk Memorial Church, Malvern; and the workhouse, Market Drayton. He was also engineer for various sewerage works, bridges, river walls, and piling, and was engaged on many important surveys.

MR. GEORGE HENDERSON.—Mr. Henderson, of the firm of Hay & Henderson, architects, Edinburgh, who died, after a short illness, on Friday last week, was interred in the Grange Cemetery. The son of Mr. John Henderson, architect, Edinburgh, he went on the completion of his professional training to Australia, and there carried on business as an architect for twelve years in Geelong. Returning to Scotland, he entered into partnership with the late Mr. William Hay, along with whom he was engaged in various building operations, including the restoration of St. Giles's Cathedral. In all subsequent alterations on St. Giles's Mr. Henderson was employed. He also acted for some years as architect to St. Mary's Cathedral, Edinburgh, in connexion with which appointment he carried through the additions to Old Coats House, adjoining the cathedral. Trinity College, Glenalmond, originally built by Mr. Henderson's father, was very largely added to under his care, and after the disastrous fire, by which a large part of the college was burned, Mr. Henderson was again retained by the governors to rebuild it. He was also employed in many works in various parts of the country—by the Earl of Home, at The Hirsel and Douglas Castle; by Mr. William Ramsay, for whom he built additions to Bowland House; by Mr. J. Peebles Chaplain, for an addition to Colliston Castle; and by others. For Dr. William Chambers he restored the tower of the ancient church of St. Andrew at Peebles. At Galashiels he built St. Paul's Parish Church and the Free Library. The fine parish church at Distington, in Cumberland, with the schools adjoining, was also his work. Under his care the nave of St. Mary's Church, Haddington, was restored, and he also prepared for the heritors of that parish designs for completing the restoration of the chancel, transepts, and tower; but this scheme has not yet been carried out. The parish church of Craiglockhart, near Edinburgh, was his work, along with the tower added to it by Sir Oliver Riddell. Mr. Henderson was also employed for buildings of importance in Canada and other colonies. The cathedral at Bermuda, in the West Indies, now nearly finished, was designed and built by him, as was also the residence of the Governor of that colony. At the time of his death Mr. Henderson had just completed the extension of the nave, with the addition of a side chapel, to the building of St. Paul's Episcopal Church, Carrubber's-close, Edinburgh. He was also engaged in the restoration of the ancient parish church of Corstorphine, and the work is nearly finished.—*Scotsman*.

MR. STURGE.—Mr. William Sturge died on March 26, at his residence, Chilliswood, Tyndall's Park-road, Clifton, aged 84 years. He was senior partner during a period of nearly fifty years of the firm of Messrs. J. P. Sturge & Sons, of Bristol, land agents and surveyors. Mr. Sturge was Land Steward to the Corporation of the City of Bristol, and had an extensive practice in the West of England. He was an original member of the Council of the Surveyors' Institution, and served as President in 1878-9, and in 1879-80. In 1860-70 he made a survey of the City of Bristol for purposes of the assessment of the borough rate; on two occasions he was appointed to act in an advisory capacity to the County Rate Committees of Somerset, and of Glamorgan, for the fixing of the county rate.

MR. JOSEPH IVES.—The death occurred, on the 26th ult., at his residence, in Wycliffe-road, Shipley, of Mr. Joseph Ives. The deceased was for many years associated with a firm of contractors, Messrs. William Ives & Co., of Cromwell-road, Shipley, who were the builders of the Bradford Town Hall and many other structures.

GENERAL BUILDING NEWS.

THE RESTORATION OF YORK MINSTER.—Simultaneously with the work of restoring the west front of York Minster, now proceeding, it has been decided to restore the north and south aisles of the nave by the erection of the missing pinnacles and flying buttresses on the north side, and the flying buttress on the south side. The existing buttresses on the north side are to be surmounted by pinnacles, decorated to correspond with those on the south aisle wall. They will be 56 ft. in height from the top of the aisle parapet, at the springing of the flying buttresses, equivalent to a height, at the apex of the pinnacle, of 106 ft. from the ground level. The designs are faithful copies of the south aisle pinnacles. The flying buttresses will have a span of 27 ft. 10 in. in their spring from the aisle parapets to the top of the clerestory walls. Those on the south side will be similar to those of the north. The whole of the work will be in Ketton stone, which possesses more durable qualities than the material formerly used in the construction of the building. The whole of the work in connexion with the erection of outer windows for the Chapter House, in order to preserve the beautiful stained-glass from further erosion under the York weather, has now been completed, with the exception of the casements, and all the stonework has been made good. Great progress, too, has been made with the south-west tower; it is anticipated that it may be completed by the middle of the summer. This will only leave the great west window, between the two towers, to be attended to, and then the restoration of the west end, which has already occupied some five years, will have been completed. Designs have been drawn by Mr. G. F. Bodley, R.A., for a new oak pulpit, richly carved and decorated, and this will shortly be erected in the nave at a cost of between 500*l*. and 600*l*.—*Yorkshire Post*.

WORKMEN'S INSTITUTE, MARDY. — The memorial-stones of the Mardy Workmen's In-

stitute were laid a short time ago. The new building will cost about 6,000*l.* The architect is Mr. Edmund Williams, C.E., Cardiff, and contractor, Mr. J. B. Mundy, Mardy.

DRILL HALL, ELGIN, N.B.—The foundation-stone has just been laid in the Cooper Park, Elgin, of the new headquarters of the 3rd Volunteer Battalion Seaforth Highlanders. The front part of the hall is built in rock-faced square rubble, finished with a tower in the Scotch Baronial style. The main building in front is surmounted with a finial bearing the date, and underneath it is the scroll and stag's head, the emblems of the Seaforth Highlanders. The tower rises to 46 ft. The principal hall measures 90 ft. by 45 ft. A gymnasium is provided. To the east of the front door and through the tower is an inside hall, and to the left is the men's reading and recreation room, which measures 23 ft. by 23 ft. Off the inside hall a stair leads to the upper story. This wing includes the sergeant-major's office, a room for the adjutant, a room for the quartermaster, and an officers' room. From the lobby a stair will lead to the tower. The back wing of the building will consist of the armoury, clothing store, cloakroom, and a room for a Maxim gun, and the quartermaster's store. Here also are the quarters of the sergeant-major. The hall is being built under the personal supervision of Mr. W. C. Reid, by whom the plans were prepared.

CHANCEL, HECKMONDWIKE CHURCH.—The corner-stone of the new chancel, to be erected at Heckmondwike Parish Church, was laid on the 23rd ult. The new chancel, which is expected to cost about 2,700*l.*, will increase the accommodation of the church by about forty-four seats, in addition to making up for the removal of the galleries. It is really part of a scheme for the entire rebuilding of the church. The next portion to be taken in hand will be the nave, the tower being left till the last. The architect is Mr. Hodgson Fowler, of Durham.

SCHOOLS, TUNBRIDGE WELLS.—The Mayor of Tunbridge Wells laid a corner-stone of the new St. Luke's Schools, in Silverdale-road, Tunbridge Wells, a short time ago. The buildings have been erected from plans prepared by Mr. E. Cronk, architect.

THEATRE, EDINBURGH.—Mr. R. C. Buchanan, Glasgow, has acquired a building site at Tarvit-street, Home-street, and Leven-street, Edinburgh, with a frontage of 95 ft. to Leven and Home streets, and 200 ft. to Tarvit-street, on which is to be erected a theatre. The site includes the old brewery and Leven House. In front there will be four shops, with the main entrance to the theatre in the centre. Above the shops will be a billiard-room, with twenty tables. The whole building is estimated to cost from 60,000*l.* to 70,000*l.* Arrangements have been come to with the tenants on the site, and building operations are to be commenced on May 28. The architects for the building are Messrs. J. D. Swanston & Syme, Kirkcaldy. Messrs. W. S. Cruikshank & Son, builders, Edinburgh, have been entrusted with the work.

HOTEL, BLOOMSBURY.—A new hotel, which is to be called the Ivanhoe, is being erected on a site covering an area of some 1,800 sq. yds. at the corner of Bloomsbury-street and Great Russell-street. The ground floor will be constructed of Portland stone, and rising above the first floor balcony will be a façade of six stories in brick and stone, with a tower and dome at the corner of Bloomsbury-street and Great Russell-street. The interior of the hotel will be fitted up with suites, as well as single rooms, making in all about 300 bedrooms. The reception and dining rooms will be decorated in mahogany panelling, plaster, and marble-work, and the hotel will be constructed throughout on fireproof principles, the floors being a fireproof invention of Messrs. Little, Edinburgh. The work is being carried out from the designs and under the supervision of Mr. T. Duncan Rhind, Edinburgh.

GUARDIANS' OFFICES, HALIFAX.—The new administrative offices erected for the Halifax Board of Guardians on the site of the old Turkish baths near the workhouse, were opened recently. On the ground floor of the new building is a waiting-room for applicants for out-relief. Immediately adjoining, and connected by a corridor, are six separate section-rooms, in which the business can be conducted simultaneously. Rooms are also provided for the relieving officers, and for a hall porter, together with lavatory accommodation. The first floor, approached by a staircase, is set apart for the large board-room, together with retiring-rooms for guardians and clerk, and lavatory and cloakroom accommodation for male and female guardians. There is accommodation for fifty-five guardians and officials. A gallery occupies the west end, opposite the chairman's desk. The building has been erected from the designs of the architect, Mr. W. Clement Williams, in the English Renaissance style. The various contractors were as follows:—Mason, T. Pickles, Luddenden Foot; carpenters and joiners, J. Charnock & Sons, Halifax; plasterer and slater, Arthur Firth, Halifax; plumber, J. H. Pollard, Halifax; heating, T. Boocock, Halifax; ironfounder, John Berry, Halifax; concretors, J. Bancroft & Son, Halifax; painting and ornamental plastering, Jonas Binns & Sons, Halifax; electric lighting and telephones, J. Sunderland & Co., Halifax; board-room fittings, seating, etc., also portion of furniture for section-rooms, Greenwood Howarth, Halifax; steel roof, J. Handyside & Co., Derby; marble mosaic paving, J. Ebner, London; and sliding partitions, Henry Whiteley, Rishworth. The total cost of the work, including the site and furnishing, is 7,927*l.* 0s. 6d.

HOSPITAL EXTENSIONS, MIDDLESBROUGH.—On the 24th ult. extensions to the Middlesbrough Sanitorium and the Small-pox Hospital at Hemlington were opened. The extensions to the Sanitorium consist of two pavilions designed by Mr. Frank Baker, C.E. They are built of Accrington red pressed bricks, and provide accommodation for sixty patients. Two small private wards are provided. The floors are of pitch-pine, and the heating apparatus is on the low-pressure system, with two radiators in the centre of the floor. The Sanitorium has now accommodation for 190 patients with quarters for a resident staff of thirty-five. The Small-pox Hospital at Hemlington is some four and a half miles from Middlesbrough, and stands on what used to be known as Belle Vue Farm. The grounds comprise some 67 acres, and the hospital buildings have been erected on a field of 4 acres on the highest part of the farm.

NEW OUT-PATIENTS' BLOCK, LEICESTER INFIRMARY.—A new out-patients' block has just been opened at Leicester Infirmary by the Marchioness of Granby. The department is approached from Parliament-street, which gives access to an open yard, at one end of which is a perambulator porch. At this end patients will be admitted. The old patients will approach the porter's room, where they will obtain their books and pass into the waiting-hall. New patients will be directed to the registration-room, and from there to the waiting-hall. This hall is an apartment 85 ft. long by 29 ft. wide, and around it are grouped physicians' consulting-roms and surgeons' consulting-rooms, together with the surgery and dressing-rooms, male and female examining-rooms, and a small room for minor operations. A room is also provided for ear, throat, and dentistry cases, with dressing-rooms, and there is a room for ophthalmic purposes, with its own small operation-room. In one of the recesses in the large hall a refreshment counter has been provided. When the patient has been attended to, he will pass on to the dispensary to obtain his medicine and out of the exit door at the opposite end of the building to that by which he entered. There are small rooms for the nurses and cleaner. In the basement are fresh-air trunks carried round the whole of the large hall. The air is drawn through a dry filter and sent along the trunks by an electrically-driven fan, 5 ft. in diameter. In its passage it is warmed to a required temperature by hinged batteries of a new type fixed at the base of the inlet flues, which convey it to the various rooms. These hinged batteries are designed to permit of thorough cleansing under and behind, and also at the base of the flues. The warmed and cleansed air is delivered to inlets, nine of which are to be seen in the central hall at a height of about 9 ft. Having circulated, it is drawn off at outlets, about 6 in. from the floor level, and taken by way of a main trunk formed in the roof space to the extraction turret, being assisted in its exit by a steam pilot coil fixed at the base of the roof outlet. The architects of the build- are Messrs. Everard & Pick, of Leicester, and those engaged in the work were:—Contractor, Mr. Chas. Wright; stonemasons, Messrs. C. Jayes & Son; slaters, Messrs. S. Broadbent & Co.; plasterers, Messrs. A. & W. Crewe; founders, Messrs. G. Poter & Sons; plumber and glazier, Mr. W. Freer; painters, Messrs. T. C. King & Co. (all of Leicester); sanitary fittings, Messrs. Doulton & Co., London; concrete flats, The New Expanded Metal Company, London; asphalt flats, Messrs. Val de Travers, Birmingham; electric light, Messrs. Gent & Harley, Leicester; ironmongery, Messrs. Collins & Co., Leicester; heating engineers, Messrs. Ashwell & Nesbit, Leicester; wall tiling, Messrs. Pilkingtons, Manchester; terrazzo floors, Messrs. Turpins, London; joinery fittings, partly contractor and partly Messrs. S. Thomas & Son, Leicester.

CLOCK TOWER, MORECAMBE.—A clock tower is to be erected on the promenade opposite Queen-street, Morecambe. The total height will be about 50 ft. The architects are Messrs. Cressey & Keighley, Morecambe.

SANITARY AND ENGINEERING NEWS.

NEW WATERWORKS, TODMORDEN.—The new waterworks, erected by the Todmorden Corporation, have just been opened. The new works are situated at Gorpley, in the Dulesgate Valley, about three miles from the centre of the town. It is estimated that the total cost will be over 60,000*l.* Mr. G. F. Deacon, of London, has been the consulting engineer, and Mr. Benjamin Lumb, of Todmorden, the contractor.

SEAHAM HARBOUR DOCK WORKS.—A meeting of the Newcastle Association of Students, in connexion with the Institution of Civil Engineers, was held on the 23rd ult., in the Armstrong College, Mr. Gerald Stoney presiding. Mr. P. T. Gask, M.Inst.C.E., read a paper, prepared by himself and Mr. Thomas Thompson, M.Inst.C.E., on the construction of Seaham Harbour dock works. He said the old docks were built by the grandfather of the present Marquis of Londonderry, about the year 1828, and consisted of a north dock, 2¾ acres, with an entrance 33 ft. wide with 16 ft. of water on the sill at high water, and a south dock of about the same size, and the sea approach to the harbour was protected by a north and a south pier, with an opening between them of 120 ft. The increase in the size and draught of steamers made a considerable extension of the dock accommodation necessary. The Seaham Harbour Dock Company was formed in 1898, and took over from Lord Londonderry all his rights in the existing dock, and obtained an Act of Parliament for the construction of a new dock and protecting piers. The contract was let to Messrs. S. Pearson & Son for a sum of 378,000*l.*, and the work was begun in March, 1899. The new works comprised two protecting piers, enclosing the site of the old docks as well as the new ones. The dock was 1,000 ft. long by 450 ft. wide, with a depth of water of 27 ft. 6 in. low water. A new entrance was provided with a width of 65 ft. and a depth on the sill of 25 ft. 6 in. This entrance was closed by a pair of timber gates, and for use in heavy weather storm gates were provided. Land on the north side was reclaimed to form a blockyard for the construction of the concrete blocks with which the two piers were to be built. For moving and stacking the blocks a 30-ton steam Goliath crane was used, with a span of 100 ft. The north pier started with the root walls enclosing the mass of rock upon which stood the old lighthouse. The pier had a total length of 1,383 ft., and was built with a radius of 1,440 ft. The inner half of the pier had a width at coping level of 25 ft., and the outer half was widened out to 30 ft. as the depth of water increased, and the gradual curvature of the pier brought it more directly exposed to the N.E., from which direction the heaviest seas were experienced. The blocks used were from 12 tons to 28 tons in weight. To set the blocks a Titan crane was obtained by the contractors, capable of lifting 30 tons at a 60-ft. radius. Subsequently an air-compressing plant was procured for working a diving bell, and a dynamo for lifting purposes. The foundations for the pier were on the magnesian limestone. The length of the pier in 1904 was 390 ft. The surface of the pier was to be paved with granite setts between the copings, and the cost of the pier worked out at about 90*l.* per lineal ft. The south pier was 878 ft. long, and was similar in construction to the north pier, except that it differed slightly in width. The entrance for the passage of vessels would be 280 ft., and it faced the south-east; and the distance from this point to the new dock entrance would be 300 yds. The new gates were of karri wood from Western Australia, and each leaf weighed something like 90 tons. Hydraulic machinery was provided for working them. Staiths were provided to deal with high capacity waggons, and, owing to the height of the cliffs upon which the storage sidings would be placed, it had been possible to lay them out on the gravity system, and to work them, as at Tyne Dock and Sunderland, without the use of engines from the time the full waggons left the storage until the empty waggons have left the staging. It was anticipated that, when the staiths had been brought into use, about 2,000,000 tons of coal per annum would be dealt with.

FOREIGN.

GERMANY.—A competition, open to German architects, is to be held for designs for a house of business for the "Silesian Society for the Promotion of National Culture"; three premiums are offered of 1,500, 1,000, and 750 marks, respectively.——The Church of St. Lawerence at Nuremberg is to be restored as far as possible to its original form.——The sum of 33,000 marks has been voted for the preservation of ancient buildings and monu-

ments in the Grand Duchy of Hess.——The ancient Town Hall and the Chamber of Commerce at Leipzig are to be restored at a cost of 650,000 marks.——The Church of St. Michael at Hildesheim is to be restored, and the safety of the famous painted ceiling over the central aisle ensured, under the direction of Professor Mohrmann.——In the competition for designs for a façade for the new station at Karlsruhe, the first premium (5,000 marks) was awarded to Professor H. Billing and Herr W. Vittali, of Karlsruhe, the second (3,000 marks) to MM. Reinhardt and Süssenguth, of Charlottenburg, and the third (1,500 marks) to Herr Stürzenäcker, of Karlsruhe.

SWITZERLAND.—On the west façade of the Government schools at Lenzburg there are two walls unbroken by windows, which have been divided by four large niches, each running the height of two stories; these are now filled by four decorative pictures by Herr Werner Büchli, representing scenes from the lives of Tell, Winkelried, Zwinglius, and Pestalozzi. ——The church at Kempraten, near Rapperswil, is being restored to its original Gothic character, under the direction of Herr P. A. Kuhn.

AUSTRIA.—By the destruction of certain buildings in the neighbourhood, the Carmelite church built at Vienna in 1632 is once more laid open to view, after a concealment of about three centuries; the church is to be restored, and the work of restoration will begin early in May.——Herr Rudolf v. Alt died at Vienna on March 12, in his 93rd year; the artist painted chiefly in water-colours, and confined himself to works of an architectural character.——A central laboratory is to be built at Vienna for the purposes of scientific and technical research.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS. —Messrs. G. Elkington & Son, architects, have removed their offices from 95, Cannon-street to Norfolk House, 7, Laurence Pountney-hill, E.C.——Mr. John Murray, architect, has removed his offices from 7, John-street, Adelphi, to 11, Suffolk-street, Pall Mall, S.W.——Messrs. Horace W. Cullum & Co., makers of soundproof partition slabs, have removed from 28, Budge-row to Craven House, Kingsway, High Holborn, W.C.

BUILDERS' EXCHANGE, SHEFFIELD.—Councillor John Dawson, of Huddersfield, recently lectured before the Sheffield Builders' Exchange on "A Visit to Athens." Mr. A. J. Forsdike presided over a large attendance, being supported by Messrs. J. Biggin, J. D. Cook, T. Roper, D. Corrie, P. Molloy, H. Wilkinson, J. R. Wigfull, W. Jones, J. C. Warring, and J. L. Taaffe (secretary). The lecturer commenced with a description of the Acropolis and the temples, theatres, and various places of assembly, which stood erected on the famous mount in the palmy days of Athens. He was assisted in conveying to his listeners an idea of the buildings and the relative positions they occupied by a large painting of the Acropolis as it was in the days of the Apostle Paul. He pointed out the fact that Greece had given to the world more great men, whether statesmen, orators, sculptors, or philosophers, than any other country of its size, and he quoted several authorities to show how Greece, in the days of her prosperity, combined severe simplicity in the home with lavish ornateness in all that applied to civic concerns, which accounted for the magnificence and unrivalled beauty of the public buildings of that time. —Mr. J. Biggin proposed, and Mr. J. D. Cook seconded, a vote of thanks to the lecturer, which was supported by the Chairman (Mr. A. J. Forsdike).—*Sheffield Independent.*

DICKS' LONDON STREET GUIDE.—At the cost of one penny Mr. Dicks furnishes a small paper-covered guide giving in three columns the names of streets (alphabetically) and their postal district, the nearest main thoroughfare, and the nearest railway station. It is a most useful pennyworth of information.

THE "MAGIC" PATENT WINDOW BALANCE.— This, which is one of the latest of the many modifications of the ordinary sash window, is an invention hailing from Brisbane, Australia, and has been examined by us at the Company's temporary showrooms at No. 4, Budge-row, E.C. The method of hanging the sashes is simple and ingenious. A metal bar is centrally pivoted on each frame-jamb, the pivot being, approximately, at the middle of the height of the window. One end of each bar is attached to the upper sash, and the other end to the lower sash. Projecting studs are fixed to the outer sides of the sash-stiles, the two for the lower sash being near the bottom rail, and those for the upper near the top rail. These studs slide in grooves in the jambs of the frame. When the sashes are closed, the pivoted bars are in a vertical position, but when the lower sash is raised they gradually revolve until a horizontal position is attained, forcing the meeting rails apart, and, at the same time, drawing the upper sash down to the same extent as the lower sash is raised from the sill. The lower sash has therefore the appearance of an inward-opening casement, pivoted on the studs near the bottom and the upper sash of an outward-opening casement pivoted on the studs near the top. The length of the pivoted bars or "balances" regulates the extent to which the windows can be opened. An extension arrangement is also fitted in some cases, by means of which a greater opening can be obtained in the upper sash without increasing the length of the balances. Since the invention was introduced into this country the inner sides of the upper stud grooves have been made to take out, so that the upper sash can be turned over for cleaning. The sashes are easily fixed and operated, and do not rattle. They are also said to be thoroughly watertight. The invention is certainly useful.

SWEET'S PATENT CHIMNEY COWL OR VENTILATOR.—We have received two models and a descriptive circular of this invention, but fail to find any particular novelty or merit in it. The shaft is simply a tapering pipe, to the sides of which five smaller tubes (open at the bottom outside and at the top inside) are attached with the idea that the outside air will pass up these tubes and create "a continuous updraught under any conditions" in the main shaft.

TECHNICAL COLLEGE CRAFTSMEN'S SOCIETY, GLASGOW.—A meeting of this Society was held on the 24th ult. in the College, this being the closing meeting of the session, when Mr. Alexander Cullen read a paper dealing with the "Decay of Stone," and "Dry Rot in Timber." He insisted on the importance of a proper understanding of the causes of such decay to all engaged in the arts and crafts. The chemical structure of stone was explained as being very closely connected with its weathering properties. The germ theory was also touched upon, as opposed to the action of chemical agencies, in being responsible for decay in stone, the lecturer, however, favouring the older belief. The proper seasoning of stone before its introduction into building was held to be essential. Dealing later with "Dry Rot in Timber," the vegetable growth or fungi causing the disease was described in detail, in its origin, its growth, and in its character and appearance, and methods for its prevention and elimination were discussed. Professor Gourlay moved, and Mr. T. L. Watson seconded, a vote of thanks to Mr. Cullen for his valuable contribution to these subjects. A business meeting of the Society was announced for Friday, April 7.

GREEN PARK.—The new pathway which is being made across Green Park from the Victoria Memorial to a point opposite Half Moon-street, Piccadilly, forms a constituent part of the scheme for the approaches to the memorial. It will be 65 ft. wide, and will have a grass border of 15 ft. on either side, and a double avenue of trees is to be planted on each side. It is authoritatively stated that there is no intention of making a carriage road across the Park, whilst some existing footpaths will be turfed over. The cost of the new path, estimated at 4,000*l.*, will be met by Mr. Walter Long's Committee on the Unemployed, and by the Queen Victoria Memorial Committee, aided by future benevolences.

COOK'S HOUSE, WHITBY.—The old house in Grape-lane, Whitby, which bears the name of the great circumnavigator, has been acquired for purposes of the local hospital committee, who propose to devote a part of the building as a museum of relics associated with Captain Cook. The house was his home in the earlier years of his career on board of a collier belonging to Whitby, and for a short period after he had entered the Royal Navy. It bears the date "1688."

LEEDS ARTS CLUB.—Mr. Percy Robinson, of Leeds, gave a lecture before the members of the Leeds Arts Club, on Saturday last week, on "Street Architecture of To-day." The chair was occupied by Mr. A. Waddington. After reference to recent discussion on "Is Leeds Ugly?" which was started by Mr. Bernard Shaw, when he recommended them to burn it down, he touched upon the architecture of various towns, none of which could be considered ideal, not even that of the Metropolis. The development of a town, he contended, lay with the inhabitants, and it lay with them as to whether it developed in a right or wrong direction. There was a lack of appreciation in us as a nation compared with the Continent, and the importance of a well-thought-out and generous treatment of city planning was not realised, or, if realised, was sacrificed for considerations of economy. The chaotic and capricious nature of our architecture of to-day was largely due to the complex factors of modern life, the varied requirements of the commercial element which cannot be sacrificed in the interests of the purely artistic, and the many restrictions which were imposed upon the architects. Architecture was an expressive art, and every building ought to express its purpose in a straightforward and simple manner; it ought to be invested with a character in harmony with the purposes for which it was to be used. But, at the same time, every building should take its proper place in the general scheme. Referring to the absence of colour in our streets, he pointed out that in Leeds particularly the blackness was due largely to smoke. He thought, however, that we had seen our worst days in that respect, now that there was an increasing tendency towards the consumption of smoke, the adoption of electricity as a motive power, and the decentralisation of factories. Deploring the narrow view taken by municipal authorities in regard to streets, as compared with what prevailed on the Continent, he said he looked upon the Cookridge-street Improvement, Leeds, as anything but a satisfactory line.

A NEW WALL PLUG.—The Clincher Patent Plug Company send us a specimen of their ingeniously constructed wall plug. This is a cylindrical wooden plug of which the half that is to be innermost in the wall is hollow and slit with four slits so as to be capable of spreading a little, and a conical cork stopper rather larger than the bore is put into it. The plug is inserted in a hole in the wall, and a blow on the outer end of the plug, when it is "home" as far as the cork will allow, drives the cork up to its head in the slit portion, spreading it into a wedge form which retains the plug in its position. The device is simple and effective. The plug can be obtained from any of the wholesale houses dealing in that class of article.

THE WIDENING OF UNION BRIDGE, ABERDEEN. —A meeting of the Improvements Committee of the Aberdeen Town Council was held recently, when the report of the Burgh Surveyor, dated January 3, relative to the widening of Union-street Bridge, was under consideration. The report gives the probable cost of the widening of the bridge as 14,000*l.*, but, in addition to that sum, 1,800*l.* would be required to make the present bridge watertight, practically nothing having been done in that direction since the bridge was erected. The committee agreed to recommend that a stone widening should be carried out, and to ask that the matter be remitted back to them with powers to employ a consulting bridge engineer to advise them as to the suitability of the bridge. They will also ask for powers to go on with the work.

WAR MEMORIAL, BURY, LANCS.—A memorial to the officers and men of the Lancashire Fusiliers who fell in the South African war was unveiled recently at Bury by the Earl of Derby. The memorial takes the form of a bronze figure of a Fusilier in "review order." The soldier is represented in the act of cheering for the King, and he holds aloft in his right hand his busby, while in the left is grasped his rifle. On the pedestal of the statue, under the badge of the regiment, is an inscription. The figure is the work of Mr. George Frampton, R.A.

STREET IMPROVEMENTS, BRADFORD.—On the 17th ult. Mr. F. H. Tulloch, Inspector for the Local Government Board, held an inquiry at the Bradford Town Hall into the application of the Bradford City Council for power to put into operation the compulsory powers of the Lands Clauses Consolidation Act, for the acquisition of certain properties required for street improvements. Mr. J. H. Cox, City Surveyor, was the first witness. With regard to Lister Hills-road, Mr. Cox pointed out that the tramway followed the road, which was very narrow in part of its length. The proposal was to continue the widening which had been begun in the lower part. Dealing with the Barkerend-road improvement, he stated that the Corporation had already improved Church Bank, and the improvement now proposed was, in effect, a continuation of that improvement. So soon as the tramway in Barkerend-road was opened it was most necessary that the street should be widened between Peckoverstreet and East Parade, and it was now proposed to make the street about double its present width, bringing it up to 18 yds. in width. In Leeds-road there was a short length with a few projecting buildings between Amberley-street and Bower Green. These projections it was proposed to remove. In Northgate there were some projecting buildings, which interfered with the widening of the road, and it was proposed also to take a piece of land, some 24 sq. yds. in area, which was already open to the street, but over which the owners of the adjoining land had rights, and had exercised those rights by storing carriages upon it. It was proposed to remove the railings in front of the George

Hotel, Market-street, and the small forecourt which narrowed the pavement. At the junction of Little Horton-lane and Manchester-road it was proposed to acquire the property back to the Albert Hotel, and to pull this down and widen the bottle-neck, which was dangerous to tramway and other traffic. In Rebecca-street, which had been already partly widened, there were two or three properties required to complete the scheme. The street at these spots was only 5 yds. in width, and it was proposed to make it 16 yds. In Buttershaw-lane the old North Bierley Urban District Council partially carried out a widening scheme, and the Corporation proposed to carry this forward and complete it. After some discussion the inquiry closed.

BRITISH FIRE PREVENTION COMMITTEE.—The British Fire Prevention Committee's testing arrangements for May include a fire test with Messrs. Pilkington Brothers' horizontal skylights of wire glass in metal and wood frames (fourth test), and a test with a heavy floor of concrete with broad flange girders, supplied by Messrs. H. J. Skelton & Co. The tests next in rotation are a test with a floor girder, and stanchion coverings, by Messrs. The New Expanded Metal Company (second test); a floor test, by Messrs. Faber, of Berlin; an asbestic brick partition test, by Messrs. The Asbestic Brick and Tile Company (second test); and various minor tests. The next report in preparation for issue is in respect to an automatic fire-alarm system, by the Autopyrophone Company, of Copenhagen.

ELECTRIC FIRE-PUMPING PLANT.—An important installation of fire-pumping plant has been put up for Lord St. Levan at St. Michael's Mount, Cornwall. It consists of a set of electrically-driven centrifugal pressure pumps in duplicate, automatic in action, placed in the engine-room, situate about 400 yds. from the castle. An electric storage battery, always charged day and night, will be fitted, of sufficient size to run either fire pump for one hour; after this time arrangements are made whereby the pumps can be driven continuously from the generating plant. In the castle itself, in convenient positions, will be situated twelve hydrants, each with a long length of hose and nozzle, ready for immediate use; also, in convenient places, nine fire-alarm switches. It will only be necessary for any one of these switches to be moved over to start the first set of the electrically-driven fire pumps in the engine-room. The same switch will start electric bells ringing over the other eight switches in the castle, and it will also ring an electric bell in each of the cottages at the bottom of St. Michael's Mount. The fire plant, electric switches, and bells are all in duplicate, and if by chance, therefore, it is found that the first plant is out of order, it will only be necessary for one of the attendants to start one of the other nine switches controlling the other set, when the second set will immediately come into operation. Arrangements have been made whereby two hydrants can be turned on practically to any part of the castle should a fire break out. The work has been carried out by Messrs. Gwynnes, Ltd., of London.

NEW CANADIAN CEMENT INDUSTRY.—A leading Toronto financial journal states that arrangements have been completed for the building at Sydney, Cape Breton, of a large plant for making cement from slag, one of the by-products of the Dominion Iron and Steel Company. The plant is to cost about $250,000, and will be the only one of the kind in Canada. The site has been selected close to the steel works. Its capacity will probably be 500 barrels a day, and a cooperage with a capacity of 50,000 barrels a year is also proposed to be built. The plant, which is to be of steel, will probably be finished in July. The City Council of Sydney have granted the Company a bonus of $10,000, exemption from taxes for twenty years, and low water rates, providing the Company manufacture not less than 25,000 barrels of cement a year.

"A. A." STUDENTS' SMOKING CONCERT.—A concert, organised by the students of the A. A., was held at the Café Monico on Tuesday last, when there was an attendance of about 400 members. Mr. E. Guy Dawber, President, occupied the chair, and a most enjoyable evening was spent. The proceeds, amounting to about 20*l.*, will be paid to the A. A. Building Fund. Amongst those present were Sir Aston Webb, R.A., Messrs. R. Phenè Spiers, H. T. Hare, W. Howard Seth-Smith, and many other well-known members. Several lady artistes contributed to the programme, and Dr. Byrd Page performed some conjuring feats. Mr. F. M. Campbell also assisted with imitations of celebrated actors.

THE SLATE TRADE.—The demand for slates is improving as the season advances, and the agreement between the Welsh, French, and German quarries will help to steady prices. At Llanberis there has been a strike of the Glynrhonwy men, a quarry hitherto remarkably free from labour troubles. As it was shown that the wages were higher than in most of the neighbouring quarries, and the quarrymen's union refused support, the men are returning to work on the Company's terms.

Legal.

BUILDING OWNER AND ARCHITECT: QUESTION OF THE OWNERSHIP OF DRAWINGS.

THE case of Gibbon *v.* Pease came before the Court of Appeal, composed of the Master of the Rolls and Lords Justices Mathew and Cozens-Hardy, on the 24th ult., on defendant's appeal from a judgment of Mr. Justice Ridley in the King's Bench Division. (The case was reported in the *Builder* of November 19, 1904.)

Mr. Montague Shearman, K.C., Mr. H. T. Kemp, K.C., and Mr. Morle appeared for the appellant, and Mr. Danckwerts, K.C., and Mr. H. Gatehouse for the respondent.

Mr. Shearman, in opening the case, said this was an appeal by the defendant from a judgment of Mr. Justice Ridley, sitting without a jury, in which he found in favour of the plaintiff, ordering the defendant, an architect, to hand over to the plaintiff certain plans and specifications. The action was tried without any evidence being given either on the one side or the other, but the learned judge considered, on the admissions, that a point of law was raised, and, upon the point of law, he thought the plaintiff was right, and he gave judgment for him, his lordship declining to receive some evidence which Mr. Kemp tendered, or was willing to tender, on behalf of the defendant. The point for decision was a short but very important one, it being whether an architect who had a general retainer from the client, the building owner, was entitled, on the conclusion of the business, to retain the plans of the building, or whether the client was entitled to have them. He (counsel) was instructed to argue this question on behalf of the Royal Institute of British Architects, the members of that Institute desiring the decision of this Court on the subject. The evidence which his learned friend, Mr. Kemp, tendered was that of members of the Institute, that a custom existed in the profession that the architect was entitled to keep the plans, but, as he had said before, the learned judge refused to entertain it. The learned counsel then proceeded to state the facts of the case. He said that in September, 1902, the plaintiff, who owned certain houses in Queen's-road, Bayswater, retained the defendant, an architect, to carry out certain work for the conversion of the upper parts of the houses into residential flats, the terms being that defendant should receive for his services 5 per cent. on the contract price. The defendant prepared the plans and specifications, and superintended the work of conversion, which was completed in June, 1903. The plaintiff paid the defendant his fees, and claimed to have the plans and specifications handed over to him, but the defendant alleged that the plaintiff was not entitled to them. The present action was then brought.

Lord Justice Cozens-Hardy asked what would happen, assuming that the defendant's contention was correct, if the building owner wished to discover where the drains were laid?

Mr. Shearman replied that he supposed, in such a case, the building owner could ask the architect for inspection of the plans.

Lord Justice Mathew: Is the architect bound to keep them in safe custody?

Mr. Shearman thought he was. In the present case no question of drains arose. He said it had been pointed out to him that the drain plans were on record, and were deposited with the local authority.

Lord Justice Cozens-Hardy remarked that that would not happen in many country places.

The Master of the Rolls asked what the custom would be if he ordered his portrait to be painted by an artist. He presumed that after the portrait had been painted and the artist had been paid his fee, the portrait would pass to him (the Master of the Rolls).

Mr. Shearman replied that in such a case as that the contract entered into would be for goods sold and delivered. The architect's contract was for work and labour. His submission was that the architect's contract was not a contract for selling the plans. Generally, an architect undertook to prepare plans and to see that they were skilfully executed for his employer. No doubt the building owner was entitled to the benefit of the use of the plans, but the pieces of paper on which they were drawn did not belong to him.

Lord Justice Mathew said he could not see what interest the architect had in the plans.

Mr. Shearman replied that there was no reason why the architect should not be entitled to make use of the plans in his future work for other clients. He submitted that all the architect undertook to do was to prepare plans and to see that they were properly and skilfully executed for the client. The contract in the present case was that the architect should receive 5 per cent. on the contract price for preparing the plans, etc., and superintending the work of conversion. He submitted that the moment the alterations were completed the property in the plans remained with the architect.

Lord Justice Mathew: How can you say whether the plans have been carried out or not if you have not got the plans? Is not the employer entitled to have the plans for the purpose of ascertaining whether they have been properly followed or not?

Mr. Shearman: He is entitled, I should say, to inspection of them.

Lord Justice Mathew: Supposing they are lost?

Mr. Shearman: It is the architect's business to take proper care of the plans, no doubt. I think that, for all reasonable purposes, the client is entitled to have the use of the plans.

Lord Justice Mathew: Supposing the architect leaves the country, or fails in health, and dies. Is the employer entitled to protect himself from any one of these contingencies, and have the possession of the plans himself?

Mr. Shearman said he did not think they could decide this question in that way. They had found that, in France and Germany, the law was that the architect kept the plans, but was bound to supply the client with one set of tracings.

The Master of the Rolls: Where do you get the obligation on the part of the architect to show the plans to the client?

Mr. Shearman said that would be got as an implied term of the contract of employment. When his learned friend opened the case in the Court below the learned judge said that he was bound by the decision in the case of Ebdy *v.* McGowan, and that, if such a custom as was alleged did exist, it was unreasonable, and that he would not receive evidence in respect to it. He contended that the case of Ebdy *v.* McGowan was distinguishable from the present case.

The learned counsel then read the report of the case of Ebdy *v.* McGowan (2 Hudson on Building Contracts).

The Master of the Rolls said that he thought the same principle was involved in both cases.

Lord Justice Mathew asked if the defendant, at the trial, had called any evidence to prove that such a custom as alleged was reasonable?

Mr. Shearman: The learned judge refused to allow my learned friend, Mr. Kemp, to call any evidence of custom at all.

Lord Justice Mathew said that, in the event of the building owner wanting to bring an action against the builder, it might be most important that the former should have the plans.

The Master of the Rolls observed that if an architect wished to keep the plans, and the building owner agreed to it, it would be easy to provide for that in the contract.

Mr. Shearman said he supposed that if his learned friend, Mr. Danckwerts, made some notes on his brief his client could not insist on having them.

Mr. Danckwerts said he thought the client would be entitled to them.

Lord Justice Mathew: If a client pays him for the brief he would be entitled to the notes, I think.

Continuing his argument, Mr. Shearman said that in the case of a portrait the employer had to have delivery of the picture. The contract between the client and the architect was for certain work to be done, and not that certain plans should be sold. When a man employed an architect to build a house the work he stipulated for was the erection of the house, not the plans from which the house was built. The client had what he bargained for when he got the house built. He submitted that the Court had to look at the engagement, and draw a reasonable inference from the engagement. It seemed to him reasonable that the architect should be entitled to the benefit of his own designs.

Lord Justice Mathew: Entitled to hang them up as ornaments in his drawing-room?

Mr. Shearman said that architects did very often hang them up in their offices. All the contract in the present case was designing and supervising the work until completion for 5 per cent. That being so, the plans which the architect produced for that purpose remained, he contended, the architect's property. The client had all he had stipulated for in having the use of the plans. He contended that the learned judge was wrong in declining to hear evidence as to custom, and that, at any rate, there ought to be a new trial.

Mr. Kemp, in following on the same side, said that the substantial and main object of the architect's employment was to get the houses

converted into flats in accordance with the defendant's design, and the preparation of the plans was a mere incident in order to carry out the intention of the building owner. He submitted that the case of Ebdy *v.* McGowan was clearly distinguishable from the present. In this case the building owner had got all he bargained for, viz., the houses converted into flats according to an approved design, and, in the circumstances, it was impossible to say that such a custom as was alleged was unreasonable, and therefore not good in law. He submitted that the learned judge had no right to shut out the evidence. The defendant was prepared to show that, in the circumstances of this case, there was a custom in the profession that the plans belonged to the architect.

The Master of the Rolls said he thought, in the circumstances of the case, that the learned judge was quite right in refusing to admit the evidence. It was not evidence of custom to tell them what architects thought they ought to have.

Mr. Kemp submitted that the learned judge was wrong in refusing to hear the evidence the defendant tendered.

Without calling upon counsel for the respondent on the appeal, the Master of the Rolls, in giving judgment, said it seemed to him that this case was clearly governed by the principle laid down in Ebdy *v.* McGowan. The defendant was employed by the plaintiff to do all that was necessary to be done by an architect for designing and carrying out a certain building operation at a remuneration of 5 per cent. on the contract price. It was not disputed that the employment involved the preparation of plans, and it was not disputed that the plans were used for the purpose of carrying out the building operations. The price was paid and the building owner claimed the plans. The architect refused to give them up, and contended that, by the custom of the profession, he was entitled to keep them. The matter came to trial before Mr. Justice Ridley, who at once referred to the case of Ebdy *v.* McGowan. Mr. Kemp then stated to the judge that there was a custom in the profession that the architect was entitled to keep the plans after the work was finished. Mr. Justice Ridley held that if the alleged custom existed it was not a custom which could bind the parties. He was not sure that the learned judge was satisfied as to the existence of the custom; but, at any rate, he held, on the authority of Ebdy *v.* McGowan, that it was so unreasonable that the Court would not give effect to it. It was then said that the case was distinguishable from the present. The principle on which Mr. Shearman vested the right of defendant to keep the plans was that the architect's contract was not a contract for the sale of a chattel, but for work and labour, and that the contract was performed when he had superintended the building of the houses. Was that the principle involved in Ebdy *v.* McGowan? In that case the plaintiff was an architect who had been employed by the defendant to prepare plans and get tenders for a vicarage. The payment was to be 5 per cent. on money expended if the vicarage was completed, if tenders were obtained and work not commenced 3 per cent. on the estimated cost, if no invitations for tenders issued 2½ per cent. The plans were prepared, but the defendant changed his mind, and declined to proceed, and wrote to the plaintiff offering to pay and asking for the plans. The architect declined to give up the plans, but sued for payment, and set up a custom among architects to retain their plans if the work was not proceeded with. It was held by the Court of Exchequer that such custom, even if proved, would be unreasonable, and that the defendant need not pay for the plans unless he got them. In his opinion, a custom which transferred the property in a chattel from the person who paid for it to the person who was paid, would be bad. If the custom had been justified in that case it must have been justified on the same contention as that on which it was sought to justify it here. If the custom was bad in the one case it must be equally bad in the other. In the present case the architect had, under his contract, done everything he could be expected to do, and he had been paid everything to which he was entitled. It was clear, therefore, that the plans were the property of the building owner. He thought the contract was to make a chattel, the property in which passed to the building owner who employed the architect to make the chattel and paid him for it. He was of opinion that Mr. Justice Ridley was perfectly right in doing as he had done, and that the case of Ebdy *v.* McGowan was perfectly good law, and ought to be followed. He thought the appeal failed, and ought to be dismissed.

Lord Justice Mathew expressed his entire agreement with the judgment of the Master of the Rolls. He said that the case had been admirably argued by the learned counsel.

Lord Justice Cozens-Hardy also thought that the appeal ought to be dismissed, being of the opinion that the proposition that the architect was entitled to retain the plans could not be maintained. If the architect were allowed to keep the plans, how was the building owner to know where the drain pipes were placed? He could not find out probably without going and making a fresh contract with the architect. Mr. Shearman had had to admit that there would be some sort of an obligation on the architect for the safe custody of the plans, and that admission put another difficulty in his way. In his view the point involved in this case was covered by the decision in Ebdy *v.* McGowan, and that this Court ought to follow the ruling in that case.

The appeal was accordingly dismissed, with costs.

DISPUTE BETWEEN BUILDING-OWNER, BUILDER, AND ARCHITECT.

THE case of Nye *v.* Crossley and another came before the Court of Appeal, composed of Lords Justices Vaughan Williams, Romer, and Stirling, on the 29th ult., on the application of the plaintiff for a stay of proceedings pending the hearing of appeal No. 86 in the Chancery General list.

Mr. Carson, K.C. (with him Mr. Beddall), in support of the application, said that the plaintiff had entered the appeal in question from a judgment of Mr. Justice Warrington. The action was one relating to a building agreement, and the question at issue was who was to be the arbitrator to decide disputes as to prices and so forth under the building agreement. Mr. Crossley was the builder and Mr. Jay, the other defendant, was the architect, and Mr. Crossley maintained that Mr. Jay was the arbitrator. Mr. Nye, the building-owner, said he was not. Mr. Justice Warrington at the trial came to the conclusion that Mr. Jay was the arbitrator, and dismissed Mr. Nye's action with costs. That was to say, his lordship gave judgment for both defendants with costs. That judgment was dated February 6, and on February 22 notice of appeal was given, and on March 6 the appeal was set down. On the same day that the appeal was set down the plaintiff's solicitors wrote to the defendants' solicitors suggesting that the question of costs should stand over pending the hearing of the appeal, but they received a reply that their instructions were to proceed. In the result an application was made to Mr. Justice Warrington to stay execution pending the appeal, but he declined to do so. The plaintiff now came before their lordships by way of original motion. The plaintiff was willing to pay over the costs in the Court below to the defendants' solicitors on their undertaking to return them if the appeal proved successful or to pay the taxed costs into Court. He (counsel) submitted that if defendants did not accept either of those courses there ought to be a stay of execution granted pending the hearing of the appeal.

After hearing Mr. Mark Romer in opposition to the application, their lordships ordered a stay of execution pending the appeal if the undertaking was not given, the costs of the application to be costs in the appeal.

ACTION AGAINST BUILDERS.

THE case of Geary, Walker, & Co. *v.* Lawrence & Son came before Mr. Justice Kennedy in the King's Bench Division this week.

This was an action by the plaintiffs, wood-flooring, etc., contractors, of 11, Queen Victoria-street, against the defendants, Messrs. Walter Lawrence & Son, building contractors, of Waltham Cross, to recover an amount alleged to be due on a wood-flooring contract.

Mr. Lewis Thomas appeared for the plaintiffs, and Mr. Scott for the defendants.

Mr. Lewis Thomas, in opening the case, said the action was to recover the price of goods sold and delivered, and work done at the Baths and Town Hall, at Edmonton, for which the defendants had the contract. They agreed with the plaintiffs for the latter to do the wood-flooring, etc., for 1,058*l.* Of this 952*l.* had been paid, and the plaintiffs brought the present action to recover the balance. The contract was dated March 16, 1903. The defendants' contention, he believed, was that the plaintiffs agreed that the work should be done and the materials supplied to the satisfaction of the architects, and that they would maintain it for a certain period. The defendants further said that, under their own contract with the Edmonton authority, they only received 80 per cent. of the amount due for work done until a certain period, and that the plaintiffs were subject to the same terms as to money being retained as security for the work being well and properly done. This, however, the plaintiffs denied, and they claimed immediate payment. There was no substantial dispute as to the amount due, but plaintiffs had not been able to obtain it. Hence the action.

His lordship said he understood the defendants to say that the money was not due when the writ was issued?

Mr. Scott: We say that the action was brought prematurely.

His lordship said that really all the expenses of the action were due to a dispute as to whether the money was actually due at the date of the writ.

Mr. Scott said that the defendants had offered to pay the amount due as soon as they ascertained how much it was under the architect's certificate, and for each party to pay their own costs. The writ was issued in May, and they did not get the certificate until September.

Mr. Lewis Thomas: They retained 20 per cent., and we say they had no right to do so, and to put us to the expense of bringing this action.

Mr. Scott argued that defendants could not be called upon to pay the money until they had the certificate that the work was done to the satisfaction of the architect.

After considerable argument, his lordship, in giving judgment, said it appeared that, after the plaintiffs had done a quantity of Odessa block-flooring, the defendants wrote to them saying that it was only reasonable that they should be bound by the same conditions as to payment as they (the defendants) were, and that 20 per cent. of the money should be retained. This was a reasonable precaution by the contractors for plaintiffs doing this work satisfactorily. He had come to the conclusion that the work was done to the satisfaction of the architect. He was sorry that the parties had not settled the case between themselves. He found, however, that the retention clause did not apply to the plaintiffs, and he gave judgment for them for 88*l.* 19s., with costs.

PATENTS OF THE WEEK.

APPLICATIONS PUBLISHED.*

4,671 of 1904.—R. W. MCDONALD and R. T. BRAMPTON: *Flooring.*

This invention consists of a construction of fireproof floor. Across the space to be covered parallel metal arches are placed, the ends of which are secured to the walls or other supports, the first and last of the series of arches are attached to said walls or other supports as they may be adjacent to. Each arch is affixed to the arch or arches next to it. Across the arched surface so formed bars of metal are placed, the ends of which are affixed to each arch, the top bar to the crown of the arches, the bottom bars to the feet. The spaces between the arches are filled in with any suitable material—brick rubbish with a sufficient amount of liquid cement poured over it to give it consistency, but any other suitable material may be employed. A concrete flooring can be placed over the metal arched surface or any other floor that is desired.

5,374 of 1904.—J. BJORNSTAD: *Electric Gear for Controlling Lifts or Hoists.*

Electric gear for controlling the driving mechanism of lifts or hoists, the said gear comprising switches operated by push buttons or the equivalent so as to make contacts whereby the driving mechanism will be started to move the car and the car be caused to stop automatically at any desired part of the lift according to which push button or the like has been operated, and whereby, when one of the push buttons or the like has been operated, all the other push buttons or the like are rendered inoperative until the car has stopped at the place intended by the operation of the push button or the like.

6,690 of 1904.—J. BUSH: *Electrically-controlled Lifts.*

In a lift controlled by means of push buttons in the cage and on the landings or floors, the use on the cage of a magnet or solenoid, the armature of which, together with a spring, operate a lever so that when the cage is standing in front of a door or gate the said lever engages, contacts, and completes a circuit through the lock of the door or gate before which the cage is standing, the said lever being drawn back, when the cage is in motion, out of line with the contacts.

8,006 of 1904.—A. WHITEWAY and C. MACINTOSH & Co., LTD.: *Tiles.*

This invention relates to tiles for floors, walls, and other purposes. The tiles, which are made from india-rubber, gutta-percha, or compositions thereof, or of other materials of a like nature, are provided with horizontal recesses or grooves, and also with tongues or projections so disposed that the tongues and projections of the edges of two contiguous tiles

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made

engage or interlock so as mutually to prevent each other lifting from the floor or falling away from the wall, as the case may be. The projections and recesses are preferably V or U shaped in cross section, and each tile is provided with both projections and recesses on different sides or edges. For instance, in a square tile two adjacent sides of the square will be provided with projections, while the other two adjacent sides of the square will be provided with recesses.

8,838 of 1904.—S. V. SMITH: *Composition for Applying to Floors, Tiles, Canvas, Floor-cloth, and other surfaces.*

This invention relates to a composition for applying to floors, canvas, tiles, floor-cloths, and other surfaces, preferably after washing, in order to freshen up such surfaces and render them more durable. The composition consists of a mixture of glue, milk, turpentine, and water, and may be made as follows:—1 lb. of glue, one quart of milk, half gill of turpentine, the whole being mixed with half a gallon of water.

9,046 of 1904.—LOCKERBIE & WILKINSON, LTD., and R. DUNCAN: *Screw Action Mechanism for Opening and Closing Fanlights, Casements, and the like.*

Screw action mechanism for opening and closing fanlights, casements, and the like, characterised by a pair of bevel wheels which are mounted to gear with each other, and one of which is operated by the handle, while the other is fixed to a screw rod in combination with an operating rod, socketed in a fixed tube, and having a tubular end which contains a tapped nut engaging with the screw rod, whereby the latter is free to telescope into the tubular end of the connected rod.

9,877 of 1904.—A. J. BOULT (T. B. Stevens): *Door Latches or Fastenings.*

An automatic latch, comprising a striker for attachment to the door frame, having a plate whose lower end is bent forwardly and is perforated, and having also a forwardly projecting arm, on which is a rearwardly faced shoulder, combined with a case, for attachment to the door, having forwardly projecting ears, and a latching wedge loosely suspended from said ears, and having a tail-piece connected with its front side and extending downwardly and rearwardly to a position where it will engage with the striker plate when the door is closed, and having its extreme lower end bent forward and perforated at such a point that the bail of a padlock may pass through such perforation and through a perforation in the lower end of the striker plate.

9,889 of 1904.—J. MUIR: *Draught and Water Excluders for Doors, and the like.*

A draught and water excluder for doors, and the like, consisting of a board or plate secured to the lower part of a door or casement sash by screws or bolts passing through slots, increasing in length as they are more distant from the hinged side, and actuated by a small wheel when the door or sash is opened.

11,828 of 1904.—N. G. SORENSEN: *Manufacture of Boards from Round Timber.*

A method of producing boards from round logs, which consists in removing slabs from opposite sides of the log by parallel cuts, slitting the slabbed log longitudinally parallel with the slabbed faces, for producing a plurality of boards of uniform thickness, and bevelling the edges of said boards uniformly, the bevels on the two edges of each board having opposite inclinations, and said bevels following the inclination of the natural bevel or curve on the edges of the board.

12,185 of 1904.—J. GLOVER: *Apparatus for Grooving Timber.*

This invention relates to apparatus for grooving timber, such as piles, or other wood beams. The invention is designed to provide a portable apparatus which can be readily conveyed to the timber to groove it, instead of having to convey the timber to the mill to be grooved. In carrying the invention into effect, a pair of metallic side plates are provided which are secured together at a given distance apart so that when placed in situ the timber to be grooved will lie between those two plates. Extending transversely between the side plates is a shaft with a saw mounted thereon, and that is driven by means of a handle and counter-shaft, provided with a toothed-wheel gearing into a pinion on the saw shaft. At intervals between the side plates are guide rolls by which the apparatus rests on the timber, and these rolls are adjustable so as to regulate the depth of cut of the saw. In one of the side plates screw pins are provided with plates or anti-friction rollers at the ends, projecting towards the timber, and adapted to keep the apparatus parallel with the timber as the apparatus travels along. These plates or rollers at the ends are spring controlled, so as to give slightly should they strike any obstruction on the timber, and thus prevent any possibility of their jamming.

13,802 of 1904.—F. ASHMORE and T. H. THOMPSON: *Means or Appliances for Opening and Closing and Fastening Fanlights, Casements, and the like.*

Appliances for opening and closing fanlights, and the like, consisting in the employment, in conjunction with a lever or movable member of the opening mechanism, of a gravitating or spring-actuated catch or locking bolt which—on the fanlight or the like being brought to its closed position—automatically engages with a suitable fixture, and thus, by blocking the angular movement of the said lever or member, prevents the fanlight or the like being opened, the releasing or disengagement of the said bolt being effected by the insertion or application of a releasing key, or by a pull cord, or other means.

22,783 of 1904.—F. MAHLER: *Casement Stays or Holders.*

A casement stay or holder, comprising a bracket secured to the window frame, a slotted bar jointed to the bracket, a bracket secured to the window rail, a screw tapped into the latter bracket and engaging in the slot of the bar, a plate through which the screw passes, having notched ends and sliding on the bar, and a flat spring through which the screw passes, having turned-down terminal portions engaging in the notches in the sliding plates.

23,195 of 1904.—G. HELBLING & CO.: *Water-waste Preventers of the Tank-Flush Type for Water-closets.*

Water-waste preventers of the tank-flush type for water-closets, which consists in arranging the lever for operating the starting valve over the siphon and pivoting the same thereon so that the lever, the siphon, and the starting valve constitute together a coherent entity, in such a manner that by reversing the position of the siphon the said lever can be shifted to the opposite side of the flushing tank, so that the filling valve with its float can be shifted also to the opposite side of the flush tank without the parts interfering with each other.

26,069 of 1904.—C. E. BATCOCK and P. W. RICKS: *Ventilating Gear for Greenhouses and the like Buildings.*

Ventilating gear for greenhouses and like buildings, comprising an endless band or wire passing over pulleys and running the whole length of the greenhouse or like building, a pivoted lever carried upon an arm attached to the side of the house to which the light is hinged, said pivoted lever being operated by cords or wires passing over pulleys and attached to endless band or wire aforesaid, an inclined bar attached to aforesaid light, upon which a roller attached to aforesaid pivoted lever engages, the whole being operated by a pulley and handle, to which ends of said endless band is attached.

27,882 of 1904.—M. D. HELFRICH: *Water-closet Seats.*

A closet seat, composed of intermediate and side sections of wood extending parallel to each other, with the grain of the wood running lengthwise of each section and parallel in the several sections, and having the central hole, whose walls are formed partially in all of the said sections, transverse openings being formed in front and rear of the hole, and extending through the intermediate sections and into the inner side edges of the side sections, and terminating in recesses formed in the underface of the side sections, arranged at points laterally beyond the side walls of the hole and at points located in from the outer edges of the side sections, the latter being unbroken at their outer edges, bolts in front and rear of the hole and extending transversely the top, and projecting at their ends laterally beyond the side walls of the hole and into the recesses at the ends of the bolt openings, and nuts on the ends of said bolts.

27,991 of 1904.—D. B. WILLIAMS and J. R. STAUFFER: *Manufacture of Fire-bricks, Crucibles, Refractory Substances, and the like.*

A process for treating clays, which consists in first moulding and drying natural clay material, then imbedding the moulded form in an envelope of amorphous coke sealed within a closed chamber, completely surrounding the sealed chamber with an envelope of fuel coke, and finally firing the latter to bring the confined amorphous coke to an incandescent condition and maintaining it in such condition until the clay formed has been converted into the hardened product.

5,309 of 1904.—W. DIECKMANN: *Adjustable Scaffolding.*

An adjustable scaffold, having uprights or supports provided with slots, and with step-like notches or serrations in combination with transverse timbers adapted to lie in rigid straps suspended in said notches or serrations in such a manner that these straps form a support and also an abutment for the transverse members, so as to prevent displacement of these latter and spreading of the uprights, and to afford relief to the connections for the transverse members.

10,170 of 1904.—B. GRAU: *Manufacture of Cement.*

In the manufacture of cement from fluid blast furnace slag by means of steam, first disintegrating the fluid blast furnace slag into graduated form by means of high-pressure steam in such a way that the mass is blown into a heap, and then allowing it to cool down of itself for the purpose of obtaining the action engendered by its inherent heat, after which the mass either alone or together with a more calcareous cement and cement clinkers may be ground up into an immediately saleable cement powder.

28,931 of 1904.—K. NURNBERGER: *Scaffolding and Staging.*

The method of scaffolding roofs in buildings, bridges, and the like, by means of a travelling cradle suspended by two hangers or holders, characterised by this that one of said holders is replaced temporarily by means of fastening ropes, or the like, and released from its supporting beam, the travelling cradle wheeled or swung round a second fixed holder which serves as a pivot, and thus the cradle is fixed in such second position by again securing the released holder to a beam above the same, whereby, in repeating such operation, a large area may be scaffolded with only a small travelling cradle.

TO CORRESPONDENTS.

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We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

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All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

March 15.—By NASH, SON, & ROWLEY (at Royston).

Ashwell, Herts.—Main-rd., an allotment of freehold land, 21 a. 0 r. 16 p., y.r. 16*l.* ..	£710

March 16.—By ALEX. MOSSMAN (at Uxbridge).

Ruislip, Middlesex.—The Common, "The Ferns," f., e.r. 35*l.*	525
Reservoir-rd., enclosure of building land, 2 a. 2 r. 32 p., f.	450

March 18.—By TUCKETT & SONS (at Rayleigh).

Rayleigh, Essex.—High-st., a residence, f. and c., y.r. 18*l.*	295
High-st., shop, two cottages, and reading-room, f., y.r. 36*l.*	510
Back-la., a freehold cottage, y.r. 6*l.*	120
Spratts Green, "Cooches" enclosures, 16 acres, f.	450
Thundersley, Essex.—Three copyhold cottages, y.r. 19*l.*	240
Cottage and 4 a. 0 r. 30 p., f. and c.	126
A freehold cottage, y.r. 5*l.*	160
South Benfleet, Essex.—Two copyhold cottages, y.r. 8*l.*	205
A freehold cottage, y.r. 5*l.*	100

By SPELMANS' (at Norwich).

Overstrand, Norfolk.—The Overstrand Hotel, f., p.	7,500

March 20.—By KING & CHASEMORE.

Nutbourne, Sussex.—"Nutbourne-pl." and 2½ acres, f., p.	1,900
Maresfield, Sussex.—"Whitehouse Cottages" (two) and 1 a. 2 r. 14 p., c.	420

By REYNOLDS & EASON.

Hackney.—56 to 64 (even), Victoria Park-rd., u.t. 49 yrs., g.r. 20*l.*, y.r. 228*l.* 19s.....	2,050
Whitechapel.—9, St. Mark's-st. (s.), f., y.r. 55*l.*	1,100
Limehouse.—Salmon-la., f.g.r. 12*l.* 12s., reversion in 64 yrs.	290
Commercial-road East.—No. 757 (s.), f., y.r. 35*l.*.....	46

By WILKINSON, SON, & WELCH (at Brighton).

Brighton.—Gloucester-rd., "The Wick Inn," a freehold rental of 57*l.*, reversion in 3 yrs.	1,300
25 and 26, Foundry-st., f., w.r. 41*l.* 12s. ...	465

By WEATHERALL & GREEN.

Kentish Town.—34, Wellesley-rd., u.t. 41 yrs., g.r. 6*l.*, w.r. 52*l.* £320

March 21.—By BEARD & SON.

Bayswater.—110, Talbot-rd. (s.), u.t. 54 yrs., g.r. 10*l.*, y.r. 60*l.* 525

Maida Hill.—28, Clifton-rd., u.t. 44 yrs., g.r. 10*l.*, y.r. 60*l.* 525

Marylebone.—8, Lyon-pl. (stabling), u.t. 18 yrs., g.r. 3*l.* 10s., y.r. 20*l.* 140

By GILBERT & HOW.

Holloway.—15 and 19, Tremlett-gr., u.t. 68¾ yrs., g.r. 14*l.* 14s., y.r. 84*l.* 915

By GRAVES & SON.

Bayswater.—64, Richmond-rd., u.t. 41 yrs., g.r. 8*l.*, e.r. 55*l.* 380

By ORGILL MARKS, & LAWRENCE.

Brentford, Middlesex.—269, High-st. (off-licensed premises), a freehold rental of 50*l.* for 43 yrs. 900

Walworth.—184, Beresford-st. (off-licensed premises), u.t. 70 yrs., g.r. 10*l.*, y.r. 60*l.* 840

By C. W. DAVIES & SON.

King's Cross.—26 to 30, Field-st., f., w.r. 109*l.* 4s. 930

183, King's Cross-rd., and 31 and 32, Field-st., f., w.r. 78*l.* 4s. 680

185, 189, 201, 203 and 209, King's Cross-rd. (s.), f., w.r. 266*l.* 12s. 2,785

14 and 16, Chad's-pl., f., w r. 27*l.* 6s. 230

Caledonian-road.—17, Corinth-rd., u.t. 55½ yrs., g.r. 7*l.*, w.r. 49*l.* 8s. 275

Holloway.—54, Arthur-rd., u.t. 37½ yrs., g.r. 6*l.* 6s., y.r. 40*l.* 335

Crouch End.—10, Crescent-rd., u.t. 63½ yrs., g.r. 6*l.*, e.r. 95*l.* 1,050

106, Crouch-hill, u.t. 63½ yrs., g.r., etc., 11*l.* 10s., e.r. 65*l.* 500

Caledonian-road. — 33, 34, 35, 36 and 38, Clayton-st., u.t. 39½ yrs., g.r. 46*l.*, w.r. 208*l.* 690

Islington.—111, Liverpool-rd., u.t. 36½ yrs., g.r. 25*l.*, y.r. 48*l.* 165

De Beauvoir Town.—130 and 132, Tottenham-rd., u.t. 17½ yrs., g.r. 8*l.*, y.r. 58*l.* 350

Clerkenwell.—31, Bowling Green-la., u.t. 26½ yrs., g.r. 11*l.*, w.r. 49*l.* 8s. 150

Margaret-st., l.g.r. 34*l.*, u.t. 10¾ yrs., g.r. 1*l.* 4s. 216

Pentonville.—37, Claremont-sq., u.t. 7½ yrs., g.r. 8*l.* 8s., y.r. 58*l.* 125

By J. C. PLATT (at Hammersmith).

Hammersmith.—57, Brook-green, u.t. 60¾ yrs., g.r. 5*l.*, y.r. 80*l.* 770

11, Girdlers-rd., u.t. 60¾ yrs., g.r. 4*l.*, y.r. 65*l.* 540

Gunnersbury.—43 to 51 (odd), Silver-cres., u.t. 89¾ yrs., g.r. 32*l.* 10s., e.r. 189*l.* 1,650

By CRAFTER, HARRIS, & Co. (at Masons' Hall Tavern).

Rotherhithe.—Rotherhithe-st., "The Duke of Clarence" p.h., with house and shop adjoining, u.t. 60 yrs., y.r. 100*l.* (with goodwill) 4,000

March 22.—By BAXTER, PAYNE, & LEPPER.

Beckenham.—108, Beckenham-rd., u.t. 64 yrs., g.r. 7*l.* 5s., e.r. 55*l.* 450

By HUNTER & HUNTER.

Holloway.—38 and 39, Grafton-rd., u.t. 47½ yrs., g.r. 12*l.* 12s., y.r. 87*l.* 12s. 535

19, Windsor-rd., u.t. 47½ yrs., g.r. 6*l.* 6s., y.r. 36*l.* 345

33 and 48, Devonshire-rd., u.t. 47½ yrs., g.r. 11*l.* 11s., y.r. 70*l.* 650

209, Seven Sisters-rd. (s.), u.t. 57½ yrs., g.r. 6*l.*, y.r. 65*l.* 490

23, Tollington-pk., u.t. 17¾ yrs., g.r. 10*l.* 10s., p. 190

2, 4 and 11, Cornwallis-rd., u t. 58 yrs., g.r. 18*l.* 12s., w.r. 136*l.* 10s. 680

Finsbury Park.—66, Finsbury Park-rd., u.t. 61¾ yrs., g.r. 9*l.* 9s., y.r. 46*l.* 470

100, Ambler-rd., and 44, Monsell-rd. (s.), u.t. 64¼ yrs., g.r. 6*l.*, y.r. 62*l.* 12s. 450

Highgate.—11, Retcar-st., u.t. 74¾ yrs., g.r. 5*l.*, w.r. 36*l.* 8s. 190

Tottenham.—4, 6, 10 to 18 (even), Willow-walk, w.r. 130*l.*, also l.g.r. 8*l.* 3s., u.t. 13 yrs., g.r. 22*l.* 2s. 6d. 210

By A. PREECE & SON.

Twickenham, Middx. — St. Margaret's-rd., "Ingleside," and "Northcote Lodge," f., y.r. 76*l.* 705

By C. P. WHITELEY.

Blackheath.—Kelvin-ter., l.g. rents 104*l.*, reversion in 96 yrs. 2,430

Bermondsey.—Layard-rd., l.g. rents 64*l.* 10s., reversion in 57, 58, and 59 yrs. 1,675

By WRIGHT & Co.

St. John's Wood.—10, Cavendish-rd., u.t. 15½ yrs., g r. 18*l.*, e.r. 110*l.* 700

By DOUGLAS YOUNG & Co.

Walthamstow.—34 to 54 (even), Cassiobury-rd.; 2 to 10, 14 to 32 (even), Salop-rd.; 2 to 38, 46 to 62 (even), 37 to 57 (odd), Morland-rd., u.t. 94 yrs., g.r. 260*l.*, w.r. 1,531*l.* 8s. (including mortgage), (in one lot) 7,290

By HEPPER & SONS (at Leeds).

Leeds.—Bond-st., a corner building site (with buildings theron), area 233½ yds., f. 9,807

Duncan-st., two building sites, area 230 yds., f. 9,430

Duncan-st., two corner shop sites, area 364 yds., f. 8,459

2 and 4, Kelsall-st., area 399 yds., f. 2,700

Hyde Park Corner, a corner business site, area 233 yds., f. 2,700

Carr-la., a plot of freehold land, area 210 yds. 105

Woodhouse-st., a business site, area 247½ yds., f. 470

Woodhouse-st., a corner building site, area 495 yds., f. 597

8, Ella-st., f., y.r. 13*l.* 205

Meadow-la., two freehold houses, area 191 yds. 439

Stocks-hill, a corner shop site, area 220 yds., f. 440

15 and 17, Town-st. (s.), area 321 yds., f., p. 750

March 23.—By FURBERS'.

Paddington.—Alfred-rd., f.g. rents 183*l.* 10s., reversion in 43 and 45 yrs. £4,985

Brindley-st., f.g. rents 250*l.*, reversion in 40 yrs. 6,815

By NEWBON, EDWARDS, & SHEPHARD.

Stroud Green.—43, Connaught-rd., u.t. 71½ yrs., g.r. 7*l.* 10s., y.r. 42*l.* 415

By VENTOM, BULL, & COOPER.

Cricklewood.—53, 61, and 63, Chichele-rd., u.t. 88 yrs., g.r. 22*l.* 1s., y.r. 165*l.* 1,515

22 to 28 (even), Ash-gr., u.t. 74 yrs., g.r. 23*l.* 2s., y.r. 152*l.* 1,310

By STIMSON & SONS.

Vauxhall.—1 to 7, Loughborough-st., c., w.r. 249*l.* 12s. 1,875

6 and 7, Leopold-st., u.t. 56½ yrs., g.r. 10*l.*, w.r. 83*l.* 4s. 480

Bermondsey.—29 to 37 (odd), Yalding-rd., u.t. 30 yrs., g.r. 25*l.*, w.r. 152*l.* 14s. 750

Norwood.—125 to 131 (odd), Knight's Hill-rd., u.t. 48¼ yrs., g.r. 10*l.*, w.r. 135*l.* 4s. 820

New Kent-road.—70 and 71, Great Brand-st., f., w.r. 66*l.* 6s. 690

Marlow, Bucks.—Holland-rd., "Thistleworth," f., y.r. 25*l.* 235

March 24.—By WM. HOLLIS.

Finchley.—Nether-st., "Netherbrook," f., e.r. 100*l.* 1,200

3, Thyra-gr., f., e.r. 60*l.* 675

Crescent-rd., "Netherley," f., e.r. 50*l.* 560

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. for public-house; o. for offices; s. for shops; ct. for court.

MEETINGS.

FRIDAY, MARCH 31.

Institution of Mechanical Engineers.—An extra meeting, when the "First Report to the Steam-Engine Research Committee," by Professor David S. Capper, will be further discussed. 8 p.m.

SATURDAY, APRIL 1.

Incorporated British Institute of Certified Carpenters.—Mr. S. B. Savill on "Construction of Bridges," illustrated by lime-light views. 6.15 p.m.

Royal Institution.—Right Hon. Lord Rayleigh on "Some Controverted Questions of Optics," I. 3 p.m.

MONDAY, APRIL 3.

Royal Institute of British Architects.—Papers on "The Planning of Cities and Public Spaces," by Mr. John W. Simpson and Professor Beresford Pite, with lantern illustrations. 8 p.m.

Liverpool Architectural Society. — Annual General Meeting. 6 p.m.

Society of Engineers.—Mr. W. Pollard Digby on "Statistics of British and American Rolling Stock." 7.30 p.m.

Society of Arts (Cantor Lecture).—Mr. H. Laws Webb on "Telephony," IV. 8 p.m.

TUESDAY, APRIL 4.

Builders' Clerks' Benevolent Institution.—Twenty-seventh Annual Dinner, King's Hall, Holborn Restaurant. 6 p.m.

Institution of Civil Engineers.—Mr. C. S. Russell Palmer on "Coolgardie Water Supply." 8 p.m.

WEDNESDAY, APRIL 5.

Royal Archæological Institute.—Mr. R. P. Brereton, M.A., on "Somerset Church Towers: their Characteristics and Classification," illustrated by lantern examples. 4 p.m.

Builders' Foremen and Clerks of Works' Institution.—Ordinary Meeting of the Members. 8 p.m.

Society of Arts.—Mr. R. N. Hall on "Ancient Architecture of the Great Zimbabwe." 8 p.m.

Institute of Sanitary Engineers, Ltd.—Election Committee. 3 p.m. Examination and Literary Committee. 5 p.m.

THURSDAY, APRIL 6.

Society of Antiquaries.—8.30 p.m.

Royal Institution.—Professor R. Meldola, F.R.S., on "Synthetic Chemistry," experimental, I. 5 p.m.

Junior Institution of Engineers.—A Visit to the Willesden Power-house of the North Metropolitan Electric Power Supply Co., Taylor's-lane, Willesden.

Institution of Electrical Engineers.—Discussion on the Report to Council on the International Congress at St. Louis, by Mr. W. Duddell, Member, Hon. Secretary to the Delegation to the Congress; and the Papers on "Systems of Electric Units," by Professor Ascoli, Professor G. Giorgi, Professors H. S. Carhart and G. W. Patterson, and Dr. F. A. Wolff. 8 p.m.

Society for the Encouragement of Fine Arts.—Mr. Philip H. Newman, F.S.A., on "Art Recollections of a Spanish Tour" (lantern illustrations). 8 p.m.

FRIDAY, APRIL 7.

Architectural Association.—Mr. H. Phillips Fletcher on "The Buildings of the World's Fair, St. Louis Exhibition, 1904." 7.30 p.m.

Royal Institution.—Mr. Alfred Moseley, C.M.G., on "American Industry." 9 p.m.

Institution of Civil Engineers (Students' Meetings).—Papers to be read (1) "Cofferdams for Dock Use," by Mr. R. G. Clark; (2) "Bath Corporation Waterworks Extension," by Mr. J. R. Fox. 8 p.m.

Society of Engineers (Westminster Palace Hotel).—Mr. George H. Hughes on "Water Works Construction." 8 p.m.

SATURDAY, APRIL 8.

Royal Institution.—The Right Hon. Lord Rayleigh on "Some Controverted Questions of Optics," II. 3 p.m.

Royal Sanitary Institute.—A Provincial Sessional Meeting, to be held at Civil-court, Small-street, Bristol, when a Discussion will take place on "Isolation Hospitals." The Discussion will be opened by Dr. D. S. Davies and Mr. T. H. Yabbicom, City Engineer and Surveyor. The Chair will be taken at 11 a.m. by Mr. W. Whitaker, B.A., F.R.S., F.G.S. (Chairman of Council of the Institute).

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£ s. d.	
Hard Stocks	1 12 0	per 1000 alongside, in river.
Rough Stocks and Grizzles	1 8 0	„ „ „
Facing Stocks ...	2 5 0	„ „ „
Shippers	2 5 0	„ „ „
Flettons	1 8 0	„ at railway depôt.
Red Wire Cuts ...	1 14 0	„ „ „
Best Fareham Red	3 12 0	„ „ „
Best Red Pressed Ruabon Facing	5 0 0	„ „ „
Best Blue Pressed Staffordshire ...	4 4 0	„ „ „
Do. Bullnose	4 10 0	„ „ „
Best Stourbridge Fire Bricks.....	4 8 0	„ „ „
GLAZED BRICKS.		
Best White and Ivory Glazed Stretchers	12 0 0	„ „ „
Headers	11 0 0	„ „ „
Quoins, Bullnose, and Flats.....	16 0 0	„ „ „
Double Stretchers	19 0 0	„ „ „
Double Headers...	16 0 0	„ „ „
One Side and two Ends	19 0 0	„ „ „
Two Sides and one End	20 0 0	„ „ „
Splays, Chamferred, Squints	20 0 0	„ „ „
Best Dipped Salt Glazed Stretchers, and Header	12 0 0	„ „ „
Quoins, Bullnose, and Flats.....	14 0 0	„ „ „
Double Stretchers	15 0 0	„ „ „
Double Headers...	14 0 0	„ „ „
One Side and two Ends	15 0 0	„ „ „
Two Sides and one End	15 0 0	„ „ „
Splays, Chamferred, Squints	14 0 0	„ „ „
Second Quality White and Dipped Salt Glazed	2 0 0	„ less than best.

	s. d.	
Thames and Pit Sand.....	7 0	per yard, delivered.
Thames Ballast.....	5 9	„ „
Best Portland Cement	27 0	per ton, „
Best Ground Blue Lias Lime	20 0	„ „

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime.....12s. 0d. per yard, delivered.
Stourbridge Fireclay in sacks 27s. 6d. per ton at rly. dpt.

STONE.

	s. d.	
BATH STONE—delivered on road waggons, Paddington Depôt	1 6½	per ft. cube.
Do. do. delivered on road waggons, Nine Elms Depôt	1 8½	„ „
PORTLAND STONE (20 ft. average)—		
Brown Whitbed, delivered on road waggons, Paddington depôt, Nine Elms depôt, or Pimlico Wharf...	2 1	„ „
White Basebed, delivered on road waggons, Paddington depôt, Nine Elms depôt, or Pimlico Wharf...	2 2½	„ „

	s. d.	
Ancaster in blocks	1 11	per ft. cube, deld. rly. depôt.
Beer „	1 6	„ „
Greenshill „	1 10	„ „
Darley Dale in blocks...	2 4	„ „
Red Corsehill „	2 5	„ „
Closeburn Red Freestone	2 0	„ „
Red Mansfield „	2 4	„ „
YORK STONE—*Robin Hood Quality.*		
Scappled random blocks	2 10	„ „
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3	per ft. super. „
6 in. rubbed two sides ditto, ditto	2 6	„ „
3 in. sawn two sides slabs (random sizes)	0 11½	„ „
2 in. to 2½ in. sawn one side slabs (random sizes)	0 7½	„ „
1½ in. to 2 in. ditto, ditto	0 6	„ „
HARD YORK—		
Scappled random blocks	3 0	per ft. cube, „
6 in. sawn two sides, landings to sizes (under 40 ft. super.)	2 8	per ft. super. „
6 in. rubbed two sides ditto	3 0	„ „
3 in. sawn two sides (slabs random sizes)	1 2	„ „
2 in. self-faced random flags	0 5	„ „

	s. d.	
Hopton Wood (Hard Bed) in blocks	2 3	per ft. cube. deld. rly. depôt.
„ „ „ 6 in. sawn both sides landings	2 7	per ft. super. deld. rly. depôt.
„ „ „ 3 in. do.	1 2½	„ „

SLATES.

in. in.	£ s. d.	
20 × 10 best blue Bangor	13 2 6	per 1000 of 1200 at r. d.
20 × 12 „ „	13 17 6	„ „
20 × 10 first quality „	13 0 0	„ „
20 × 12 „ „ „	13 15 0	„ „
16 × 8 „ „ „	7 5 0	„ „
20 × 10 best blue Portmadoc	12 12 6	„ „
16 × 8 „ „	6 12 6	„ „

SLATES (*continued*).

		£	s.	d.	
in. in.					
20 × 10 best Eureka unfading green		15	17	6	per 1000 of 1200 at r. d.
20 × 12	" "	18	7	6	" "
18 × 10	" "	13	5	0	" "
16 × 8	" "	10	5	0	" "
20 × 10 permanent green		11	12	6	" "
18 × 10	" "	9	12	6	" "
16 × 8	" "	6	12	6	" "

TILES.

	s.	d.	
Best plain red roofing tiles	42	0	per 1000 at rly. depôt.
Hip and Valley tiles	3	7	per doz. " "
Best Brosely tiles	50	0	per 1000 " "
Do. Ornamental tiles	52	6	" " "
Hip and Valley tiles	4	0	per doz. " "
Best Ruabon red, brown, or brindled do. (Edwards)	57	6	per 1000 " "
Do. Ornamental do	60	0	" " "
Hip tiles	4	0	per doz. " "
Valley tiles	3	0	" " "
Best Red or Mottled Staffordshire do. (Peakes)	51	9	per 1000 " "
Do. Ornamental do	54	6	" " "
Hip tiles	4	1	per doz. " "
Valley tiles	3	8	" " "
Best "Rosemary" brand plain tiles	48	0	per 1000 " "
Best Ornamental tiles	50	0	" " "
Hip tiles	4	0	per doz. " "
Valley tiles	3	8	" " "
Best "Hartshill" brand plain tiles, sand faced	50	0	per 1000 " "
Do. pressed	47	6	" " "
Do. Ornamental do	50	0	" " "
Hip tiles	4	0	per doz. " "
Valley tiles	3	6	" " "

WOOD.

Building Wood.	At per standard. £	s.	d.	£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in	13	10	0	15	0	0
Deals: best 3 by 9	13	0	0	14	0	0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11	0	0	12	0	0
Battens: best 2½ by 6 and 3 by 6	0	10	0	less than 7 in. and 8 in.		
Deals: seconds	1	0	0	less thn best		
Battens: seconds	0	10	0	" " "		
2 in. by 4 in. and 2 in. by 6 in.	9	0	0	10	0	0
2 in. by 4½ in. and 2 in. by 5 in.	8	10	0	9	10	0
Foreign Sawn Boards— 1 in. and 1¼ in. by 7 in.	0	10	0	more than battens.		
¾ in.	1	0	0	"		
	At per load of 50 ft.					
Fir timber: best middling Danzig or Memel (average specification)	4	10	0	5	0	0
Seconds	4	0	0	4	10	0
Small timber (8 in. to 10 in.)	3	12	6	3	15	0
Small timber (6 in. to 8 in.)	3	0	0	3	10	0
Swedish balks	2	10	0	3	0	0
Pitch-pine timber (30 ft. average)	3	5	0	3	15	0
Joiners' Wood.	At per standard.					
White Sea: first yellow deals, 3 in. by 11 in	24	0	0	25	0	0
3 in. by 9 in.	22	0	0	23	0	0
Battens, 2½ in. and 3 in. by 7 in.	16	10	0	18	0	0
Second yellow deals, 3 in by 11 in	18	10	0	20	0	0
" " 3 in. by 9 in.	17	10	0	19	0	0
Battens, 2½ in. and 3 in. by 7 in.	13	10	0	14	10	0
Third yellow deals, 3 in. by 11 in. and 9 in.	13	10	0	15	0	0
Battens, 2½ in. and 3 in. by 7 in.	11	0	0	12	0	0
Petersburg: first yellow deals, 3 in. by 11 in.	21	0	0	22	10	0
Do. 3 in. by 9 in.	18	0	0	19	10	0
Battens	13	10	0	15	0	0
Second yellow deals, 3 in. by 11 in.	16	0	0	17	0	0
Do. 3 in. by 9 in.	14	10	0	16	0	0
Battens	11	0	0	12	10	0
Third yellow deals, 3 in. by 11 in.	13	0	0	14	0	0
Do. 3 in. by 9 in.	12	10	0	14	0	0
Battens	10	0	0	11	0	0
White Sea and Petersburg: First white deals, 3 in. by 11 in.	14	10	0	15	10	0
" " 3 in. by 9 in.	13	10	0	14	10	0
Battens	11	0	0	12	0	0
Second white deals, 3 in. by 11 in.	13	10	0	14	10	0
" " 3 in. by 9 in.	12	10	0	13	10	0
" " battens	10	0	0	11	0	0
Pitch-pine: deals	16	10	0	20	0	0
Under 2 in. thick extra	0	10	0	1	0	0
Yellow Pine—First, regular sizes	40	0	0	upwards.		
Oddments	28	0	0	"		
Seconds, regular sizes	30	0	0	"		
Yellow Pine oddments	25	0	0	"		
Kauri Pine—Planks, per ft. cube	0	3	6	0	5	0
Danzig and Stettin Oak Logs— Large, per ft. cube	0	3	0	0	3	6
Small " "	0	2	6	0	2	9
Wainscot Oak Logs, per ft. cube	0	5	0	0	5	6
Dry Wainscot Oak, per ft. sup. as inch	0	0	8	0	0	9
¾ in. do. do.	0	0	7	—		
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch	0	0	9	0	1	0
Selected, Figury, per ft. sup. as inch	0	1	6	0	2	6
Dry Walnut, American, per ft. sup. as inch	0	0	10	0	1	0
Teak, per load	17	0	0	21	0	0
American Whitewood Planks, per ft. cube	0	4	0	0	5	0
Prepared Flooring, etc.—	Per square.					
1 in. by 7 in. yellow, planed and shot	0	13	6	0	17	6
1 in. by 7 in. yellow, planed and matched	0	14	0	0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	16	0	1	0	0
1 in. by 7 in. white, planed and shot	0	12	0	0	14	6
1 in. by 7 in. white, planed and matched	0	12	6	0	15	0
1¼ in. by 7 in. white, planed and matched	0	15	0	0	16	6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0	11	0	0	13	6

WOOD (*continued*).

Prepared Flooring (*continued*)—	Per square. £	s.	d.	£	s.	d.
1 in. by 7 in. yellow, matched and beaded or V-jointed brds.	0	14	0	0	18	0
¾ in. by 7 in. white do. do.	0	10	0	0	11	6
1 in. by 7 in. do. do.	0	12	9	0	15	0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £	s.	d.		£	s.	d.
Rolled Steel Joists, ordinary sections	5	15	0	...	6	15	0
Compound Girders, ordinary sections	7	5	0	...	8	7	6
Steel Compound Stancheons	9	2	6	...	10	12	6
Angles, Tees and Channels, ordinary sections	7	7	6	...	8	7	6
Flitch Plates	7	15	0	...	8	5	0
Cast Iron Columns and Stanchions including ordinary patterns	6	12	6	...	7	15	0

METALS.

	Per ton, in London. £	s.	d.		£	s.	d.
Iron—							
Common Bars	7	0	0	...	7	10	0
Staffordshire Crown Bars, good merchant quality	7	10	0	...	8	0	0
Staffordshire "Marked Bars"	9	10	0	...	—		
Mild Steel Bars	8	5	0	...	8	15	0
Hoop Iron, basis price	8	15	0	...	9	0	0
" Galvanized	16	10	0	...	—		
" " (*And upwards, according to size and gauge.)							
Sheet Iron, Black—							
Ordinary sizes to 20 g.	9	0	0	...	—		
" " 24 g.	10	0	0	...	—		
" " 26 g.	11	15	0	...	—		
Sheet Iron, Galvanised, flat, ordinary quality—							
Ordinary sizes—6 ft. by 2 ft. to 3 ft. to 20 g.	12	10	0	...	—		
Ordinary sizes to 22 g. and 24 g.	13	0	0	...	—		
" " 26 g.	14	0	0	...	—		
Sheet Iron, Galvanised, flat, best quality—							
Ordinary sizes to 20 g.	15	10	0	...	—		
" " 22 g. and 24 g.	16	0	0	...	—		
" " 26 g.	17	10	0	...	—		
Galvanised Corrugated Sheets—							
Ordinary sizes 6 ft. to 8 ft. 20 g.	12	10	0	...	—		
" " 22 g. and 24 g.	13	0	0	...	—		
" " 26 g.	13	15	0	...	—		
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	11	0	0	...	—		
Best Soft Steel Sheets, 22 g. & 24 g.	12	0	0	...	—		
" " " 26 g.	13	10	0	...	—		
Cut nails, 3 in. to 6 in.	9	0	0	...	9	10	0

(Under 3 in., usual trade extras.)

LEAD, &c.

	Per ton, in London. £	s.	d.		£	s.	d.
Lead—Sheet, English, 3lb. and up	15	2	6	...	—		
Pipe in coils	15	12	6	...	—		
Soil pipe	18	2	6	...	—		
Compo pipe	18	2	6	...	—		
Zinc—Sheet—							
Vieille Montagne ton	30	15	0	...	—		
Silesian	30	10	0	...	—		
Copper—							
Strong Sheet per lb.	0	0	10	...	—		
Thin "	0	0	11	...	—		
Copper nails "	0	0	10	...	—		
Brass—							
Strong Sheet "	0	0	9½	...	—		
Thin " "	0	0	10	...	—		
Tin—English Ingots "	0	1	4½	...	—		
Solder—Plumbers' "	0	0	6½	...	—		
Tinmen's "	0	0	8	...	—		
Blowpipe "	0	0	9	...	—		

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2¾d. per ft. delivered.
" fourths	2d. " "
21 oz. thirds	3¾d. " "
" fourths	3d. " "
26 oz. thirds	4¾d. " "
" fourths	3¾d. " "
32 oz. thirds	5¾d. " "
" fourths	5d. " "
Fluted Sheet, 15 oz.	3¼d. " "
" 21 oz.	4¼d. " "
⅛ Hartley's Rolled Plate	2d. " "
1/16 " " "	2¼d. " "
¼ " " "	2½d. " "

OILS, &c.

		£	s.	d.
Raw Linseed Oil in pipes	per gallon	0	1	8
" " " in barrels	"	0	1	9
" " " in drums	"	0	1	11
Boiled " " in pipes	"	0	1	10
" " " in barrels	"	0	1	11
" " " in drums	"	0	2	1
Turpentine, in barrels	"	0	3	6
" in drums	"	0	3	8
Genuine Ground English White Lead	per ton	19	15	0
Red Lead, Dry	"	19	5	0
Best Linseed Oil Putty	per cwt.	0	6	6
Stockholm Tar	per barrel	1	12	0

VARNISHES, &c.

	Per gallon. £	s.	d.
Fine Pale Oak Varnish	0	8	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of Churches	0	14	0
Fine Elastic Carriage	0	12	6
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	16	0
Finest Pale Durable Copal	0	18	0
Extra Pale French Oil	1	1	0
Eggshell Flatting Varnish	0	18	0
White Copal Enamel	1	4	0
Extra Pale Paper	0	12	0
Best Japan Gold Size	0	10	6
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	6
Berlin Black	0	16	0
Knotting	0	10	0
French and Brush Polish	0	10	0

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom at the rate of 19s. per annum (52 numbers) PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 26s. per annum. Remittances (payable to J. MORGAN) should be addressed to the Publisher of "THE BUILDER," Catherine-street, W.C.

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TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

ABERTILLERY.—For the erection of a mixed and infants' school at Cwmcuffin, Llanhilleth, for Abertillery Urban District Council. Messrs. Swash & Bain, architects, Midland Bank Chambers, Newport, Mon.:—

W. Bowers	£11,960 0 0	W. A. Linton	£10,200 0 0
C. H. Reid	11,000 0 0	J. Jenkins	10,115 0 0
A. S. Morgan & Co.	10,500 0 0	C. Coake	9,600 0 0
N. Bagley	10,368 4 2	D. Lewis, Llanhilleth*	8,800 0 0

ANSTRUTHER WESTER (N.B.).—For paving Elizabeth-place, for the Town Council. Messrs. J. & T. W. Currie, architects, Elie:—

L. McDonald, Inverkeithing, N.B. £142 13

BASINGSTOKE.—For sewerage works (laying pipes, etc.), for the Corporation. Mr. F. R. Phipps, Borough Surveyor, Town Hall, Basingstoke:—

F. Osman, Four Posts, Southampton* £2,655

CHAPEL-EN-LE-FRITH.—For cast-iron pipes (Contract No. 1. Chapel-en-le-Frith and Chinley water scheme), for the Rural District Council. Messrs. Swann & Brady, Engineers, Town Hall, Chapel-en-le-Frith:—

Staveley Coal & Iron Co., Ltd., near Chesterfield £5,085 11 7

COBHAM (near Gravesend).—For erecting a laundry at Isolation Hospital, Whitehill-road, for the Strood Rural District Council:—

W. H. Archer & Son	£469 0	G. F. Burr	£368 15
West Bros.	435 0	W. & F. Tuffee	357 0
A. E. Thong	408 0	H. Wells	356 0
B. Multon	379 0	F. Spencer & Son	356 0
W. Browning	373 0	T. W. Hooker, Gravesend*	356 0
W. Reeves	370 0		

EAST BARNET.—For 1,500 yds. of 6-in. pipe sewer (stormwater sewers, Prospect-road, etc.), for the Urban District Council of East Barnet Valley. Mr. H. York Surveyor, Station-road, New Barnet:—

W. Butcher	£1,045 0 0	Langley, Hardy, & Johnson	£759 0 0
G. Bell	989 0 0	T. Adams	749 0 0
M. S. Kitteringham	933 0 0	J. Jackson	656 0 0
A. T. Catley	789 0 0	Hewett & Sons, Barking*	619 15 0

GUILDFORD.—For street works, George-street, Farncombe, Godalming, for the Rural District Council. Mr. J. Anstee, Engineer, Guildford:—

Cunningham, Forbes, & Co.	£1,051 18 9	A. T. Catley	£888 0 0
W. Norris	1,001 18 6	T. Turner	871 2 6
G. A. Franks	969 17 4	Hewett & Sons, Ltd., Battery Wharf, Barking*	862 16 2
A. Streeter & Co.	946 0 0		

GUILDFORD.—For erecting brick and concrete piers to carry girder bridge across mill stream at Rickford, Worplesdon, for the Rural District Council. Mr. J. Anstee, Engineer, Guildford:—

E. J. Hart	£303 3 4	W. Young	£181 10 0
J. Faggetter	258 0 0	A. J. Ellis	179 6 0
Cunningham, Forbes, & Co.	220 5 6	T. Turner	176 6 3
G. A. Franks	208 4 7	A. T. Catley, 23, Lloyd-square, London, W.C.*	170 0 0
Swayne & Son	188 0 0		
A. H. Ball & Co.	181 16 0		

HARPENDEN.—For making sundry alterations and additions in the erection of a new post-office and shop in High-street, Harpenden, for Mr. A. F. Willmott. Mr. Henry F. Mence, architect, Town Hall-chambers, St. Albans:—

E. Dunham	£890	J. Jarvis & Sons, London*	£840
H. Salisbury & Son	840		

HATFIELD.—For the erection of a new residence near Hatfield, Herts., for Dr. P. Morgan Brittain. Mr. Henry F. Mence, architect. Quantities by the architect:—

C. Miskin & Sons	£1,700	W. Saint	£1,536
S. Worboys	1,635	Boff Bros.	1,514
Ekins & Co.	1,580	Vail & Williamson, St. Albans*	1,41
E. Dunham	1,573		

HORBURY (Yorks.).—For road-making, etc., and erecting five cottages and out-offices, School-lane. Mr. Abraham Hart, architect and surveyor, Bank-street, Wakefield. Quantities by the architect:—

Road-making and Sewer.

J. Wainwright & Sons, Horbury* £164 10 0

Five Cottages and Out-offices.

Excavator, Bricklayer, and Mason: J. & G. Hutchinson, Ossett and Horbury*	439 0 0
Slaters: Peckles Bros., Leeds*	37 15 0
Plasterer: J. Exley, Horbury*	38 0 0
Carpenters and Joiners: M. & T. Ellis, Ossett*	175 0 0
Plumber, Glazier, and Gasfitter: G. Williamson, East Ardsley*	42 10 0
Painter: T. Naylor, Wakefield*	11 14 6

TENDERS.—*Continued on page* 365.

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

(For some Contracts, etc., still open, but not included in this List, see previous issues.)

COMPETITIONS.

Nature of Work.	By whom Required.	Premiums.	Designs to be Delivered
*Plans for Orphanage at Harrogate	Rev. J. T. Barkby	Not stated	May 24

CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tenders, etc., supplied by	Tenders to be Delivered
Chapel, Laboratories, Lecture Hall, etc., St. Bees Sch.	.....	J. F. Curwen, F.S.A., Architect, Kendal	April 3
Filter Bed, Boultham Pumping Station	Lincoln Corporation	Waterworks Office, Silver-street, Lincoln	do.
Fire Appliances	Todmorden Guardians	F. Hollinrake, Clerk, Union Offices, Todmorden	do.
Temporary School, etc., Beech-street, Winton	Eccles Corporation	E. Parkes, Town Clerk, Town Hall, Eccles	do.
Materials and Works	Teddington U.D.C.	M. Hainsworth, Surveyor, Council Offices, Teddington	do.
300 yds. of Destructor Clinker	Chingford U.D.C.	H. Bird, Clerk, 34, Station-road, Chingford	do.
450-gallon Street Watering-Van	Farnborough U.D.C.	J. E. Hargreaves, Surveyor, Farnborough	do.
Extension of Town Hall (1st section)	Bradford Corporation	F. E. P. Edwards, City Arch., Whitaker-bldgs., Brewery-st., Bradfd.	April 4
Materials	Dundee Gas Commissioners	A. Yuill, Engineer, Gas Works, Dundee	do.
Cart Shed, etc., Highway Depot, Walton-road	East and West Molesey U.D.C.	D. Cann, Council Offices, Dundee Villa, St. Mary's-rd., E. Molesey	do.
Paving Works, Edgware-road	Middlesex C.C.	H. T. Wakelam, County Engineer, Middx. Guildhall, Westminster	do.
Wrought-Iron Material	Bombay, Baroda, & Cent. Ind. Ry. Co.	T. W. Wood, Sec., Gloucester Ho., Bishopsgate-st. Without, E.C.	do.
Hauling Stone and Material	Bredwardine R.D.C.	H. Hamar, Surveyor, Brocklands, Hay	do.
Flints	Portslade-by-Sea U.D.C.	Surveyor, 46, St. Andrew's-road, Portslade-by-Sea	do.
West-street Schools	Colne Education Department	Holgate & Spivey, Architects, Colne	do.
Restoration of Knockando Church	.....	J. Robertson, Architect, Inverness	do.
Bowling Green, etc.	Carlisle Corporation	H. C. Marks, City Engineer, 36, Fisher-street, Carlisle	April 5
Pavilion, etc.	do.	do.	do.
Two Lancashire Steam Boilers	Rochdale Gas, etc., Committee	T. Banbury Ball, Gas Works, Rochdale	do.
Road and Sewer, Bailiff Bridge	.....	J. F. Walsh & G. Nicholas, Architects, Museum-chambers, Halifax	do.
Six Terrace Houses, Bailiff Bridge	.....	do.	do.
Pair of Semi-detached Houses, Bailiff Bridge	.....	do.	do.
Materials	Morley Corporation	W. E. Putman, Borough Engineer, Town Hall, Morley	do.
Road Materials	Rochford R.D.C.	F. Gregson, Clerk Southend-on-Sea	do.
Steel Plates, Files, etc., etc.	East India Railway Co.	C. W. Young, Secretary, Nicholas-lane, E.C.	do.
Iron Watercart with Sprayer	.....	W. Holloway, Clerk to Parish Council, Tadcaster	do.
Plumbing Work, Workhouse Premises, etc.	Rathdown Guardians	P. Cunniam, Clerk, Loughlinstown, Ireland	do.
Cornish Boiler at Waterworks, Wyndham-road	New Sarum Town Council	F. Hodding, Town Clerk, Municipal Offices, Salisbury	do.
Furniture for Infirmary	Devonport Guardians	A. Gard 19, St. Aubyn-street, Devonport	do.
5,000 tons of Granite	Thingoe R.D.C.	A. R. Cameron, Surveyor, Mill-lane, Bury St. Edmunds	do.
Making-up Eastbrook-road	Waltham Holy Cross U.D.C.	W. Turner-Streather, Surveyor, Town Hall, Waltham Abbey	do.
North Aisle, St. John's Church, Peasedown St. John	.....	C. Gamlen, Vicar, Peasedown St. John, near Bath	April 6
Road Repairing Material	Bognor U.D.C.	O. A. Bridges, Town Surveyor, Bognor	do.
Cast-Iron Pipes, Valves, etc., for Filter, Green-lane	Failsworth U.D.C.	G. F. Gray, Surveyor, Council Offices, Failsworth	do.
Carting Road Material	Whiston R.D.C.	R. J. Knapman, C.E., Surveyor, Delph-lane Offices, Whiston	do.
Road Material	do.	do	do.
Two Electric Motors	Ormskirk Guardians	G. R. Peers, Electrical Engineer, 18, John Dalton-st., Manchester	do.
Making-up Streets	Southend-on-Sea Corporation	E. J. Elford, Borough Surveyor, Southend-on-Sea	do.
Police Station, etc., Wharncliffe-road, Ilkeston	Ilkeston Corporation	H. J. Kilford, Borough Engineer, Town Hall, Ilkeston	do.
Exten. of Female Casuals' Washhse., Tame-st., Ancoats	Manchester Joint Workhouse Com.	A. J. Murgatroyd, Architect, 23, Strutt-street, Manchester	April 7
Materials	Cheadle and Gatley U.D.C.	E. Sykes, Surveyor, 9, High-street, Cheadle, near Manchester	do.
Road Metal	Whickham U.D.C.	T. Lambert, Clerk, Town Hall, Gateshead	do.
Extensions, etc., Baptist Church, Pisgah, Cymmer	.....	W. Rees, High-street, Cymmer	do.
Shop, Charles-streeet, Milford Haven	Messrs. Woodley & Co.	W. J. Wood & J. B. Gaskell, Architects, Milford Haven	do.
New Church, Elgin	.....	W. C. Reid, Architect, Elgin	do.
Materials	Worsley U.D.C.	J. A. Corson, Surveyor, District Offices, Hilton-lane, Walkden	April 8
Minister's Residence, Moretonhampstead, Devon]	.....	A. J. Cornelius, Architect, Truro	do.
Stores	S.E. and Chatham Railway Co.	Superintendent of Stores, 84, Tooley-street, London, S.E.	do.
Disinfectants	Dewsbury Corporation	H. Ellis, Town Clerk, Dewsbury	do.
Alterations, etc., Council School, Broomfleet	Education Com., East Riding of York	Clerk of Works, Beverley	do.
Steam Pipe Cover, District Asylum, Ballinasloe	Committee of Management	J. Young, Clerk of Asylum	do.
Granite	Blything R.D.C.	H. A. Mullens, Union Offices, Bulcamp, Halesworth	do.
Alterations, etc., Embden-st. Municipal School, Hulme	Manchester Education Committee	Education Offices, Deansgate, Manchester	April 10
Sewer Extension, Troedrhiwfuwch	Gelligaer and Rhigos R.D.C.	J. P. Jones, Surveyor, Council Offices, Hengoed	do.
Mortuary, Weston Point	Runcorn R.D.C.	G. F. Ashton, Clerk, 71, High-street, Runcorn	do.
Weaving Shed, Warehouse, etc., Dryden-st., Padiham	Albion Room and Power Co.	S. Keighley, 27, Nicholas-street, Burnley	do.
Septic Tank Installation, Southwick	Brighton Corporation	H. Talbot, Town Clerk, Town Hall, Brighton	do.
Barrachnie Sewer (Mount Vernon Drainage)	District Com., Middle Ward, Lanark	W. L. Douglass, District Engineer, District Offices, Hamilton	do.
Eighteen Houses, Bedlinog	.....	Mr. Williams, Architect, Bedlinog	do.
Road Metal and Carting	Chester-le-Street R.D.C.	G. W. Ayton, Highway Surveyor, Chester-le-Street	do.
Mixed School, Greaves, Lancaster	Education Committee	J. C. Mount, Borough Surveyor, Lancaster	do.
Road Materials	Dover Town Council	W. Knocker, Town Clerk, Castle Hill House, Dover	do.
Alterations to Dennistown Depot	Glasgow Corporation	J. Dalrymple, 46, Bath-street, Glasgow	do.
*Provid., etc., about 200 yds. 2-in. C.I. Pipes in the Park	Hendon U.D.C.	Council's Engineer and Surveyor, The Burroughs, Hendon, N.W.	do.
*100 to 200 tons of Portland Cement	do.	do.	do.
Staircase and Covered-way at Brentford	Great Western Railway Co.	Engineer, Paddington Station, London	April 11
Covering for Crane at Hayes	do.	do.	do.
Two Footbridges (Freshford and Panteg)	do.	do.	do.
2¼ miles of Widening Line, Olton to Bordesley	do.	do.	do.
Sewer No. 3, 2,009 lineal yds.	Glasgow Corporation	City Engineer, 64, Cochrane-street, Glasgow	do.
Street Making and Sewering (Rose-terrace, etc.)	Crewe Town Council	G. Eaton Shore, Borough Surveyor, Crewe	do.
200 lineal yds. of Sanitary Pipe Sewers, Ponteland	Castle Ward R.D.C.	J. Jameson, Sanitary Surveyor, Ponteland	do.
Stoneware Pipes	Edmonton U.D.C.	G. Eedes Eachus, Engineer, Town Hall, Edmonton	do.
*Extension of School, Ilford	Essex Education Committee	C. J. Dawson, Architect, 11, Cranbrook-road, Ilford	do.
Bank, Batley	Union of London & Smiths Bkg. Co.	W. Hanstock & Son, Architects, Batley	April 12
Brick Chimney, Storth Brickworks, Elland	.....	Sharp & Waller, Architects, 32, Bradford-road, Brighouse	do.
Road Materials	Uckfield R.D.C.	F. Holman, Clerk, 86, High-street, Lewes	do.
Alterations, Aman Infant School, Aberaman	Aberdare U.D.C.	J. Morris, Clerk, Town Hall, Aberdare	do.
Artisans' Dwellings, Wellington-street, Canton	Cardiff Corporation	W. Harpur, Borough Engineer, Town Hall, Cardiff	do.
Gateside Sewer	District Com., Middle Ward, Lanark	W. L. Douglass, C.E., District Offices, Hamilton	do.
Chudleigh Knighton Water Supply	Newton Abbott R.D.C.	F. Horner, Clerk, Council Offices, Newton Abbott	do.
Annual Contracts	Hoylake and West Kirby U.D.C.	R. Williams, Clerk, Town Hall, Hoylake	do.
Socket Drain Pipes	St. Austell R.D.C.	A. J. Blight, Highway Surveyor, Trelowth, St. Austell	do.
Road Materials	Radstock U.D.C.	G. H. Gibson, Surveyor, Radstock, Bath	do.
*Making up Rostrevor-mews Approach	Borough of Fulham	Borough Surveyor, Town Hall, Fulham, S.W.	do.
*Jarrah Wood Paving	Hampstead Borough Council	O. E. Winter, Town Hall, Haverstock-hill, N.W.	April 13
Painting, Armley and Oak Road	Leeds Corporation	City Engineer's Office, Leeds	April 14
Painting, Hunslet Lake, Holbeck Moor, and Farnley	do.	do.	do.
Painting, Bramley and Stanningley	do.	do.	do.
Police Station, Llanharan	Glamorgan Quarter Sessions and C.C.	County Surveyor's Office, Town Hall, Bridgend	do.
18-in. Main Sewer, Sewer Diversion, Road, etc.	Cleethorpes-with-Thrunscoe U.D.C.	E. Rushton, Engineer, Council House, Cleethorpes	do.
Tar Macadam	do.	do.	do.
*Special Schools on Clifton-avenue Site	Walthamstow Education Committee	Com.'s Arch., Education Committee Offices, High-st, Walthamstow	do.
Superstructures: Casual Wards, Labour Sheds, etc.	Guildford Guardians	E. L. Lunn, Architect, 36, High-street, Guildford	April 15
Stores	Prestwich U.D.C.	W. Nuttall, Surveyor, Chester Bank, Prestwich	do.
Road Materials, Cartage	Tenterden Corporation	W. L. C. Turner, Borough Surveyor, Town Hall, Tenterden	do.
Jobbing Work	do	do.	do.
Boilers and Superheating Appar. for Elec. Pow. Plant	Clyde Navigation Trustees	G. H. Baxter, Mechanical Engineer, 16, Robertson-street, Glasgow	April 17
Bow-well Centre-ladder Self-propelling Dredger	do.	do.	do.
Congregational Church, Penydarren, Merthyr Tydfil	.....	Owen Morris Roberts & Son, Architects, Portmadog	do.

CONTRACTS.—*Continued.*

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, etc., supplied by	Tenders to be Delivered
Painting Roundhay	Leeds Corporation	City Engineer's Office, Leeds	April 17
Permanent Way Construction and Paving	Batley Corporation	Lacey, Sillar, & Leigh, 2, Queen Anne's-gate, Westminster	do.
Overhead Equipment, Steel Poles, etc.	do.	do.	do.
Feeder Cables, Conduits, and Accessories	do.	do.	do.
*New Offices, Lewes	East Sussex C.C.	F. J. Wood, County Surveyor, Lewes	do.
*Erection of Public Library	Erith U.D.C.	W. Egerton, Architect, 12, Queen's-road, Erith	do.
Llantrisant Waterworks (Reservoir, etc.)	Llantrisant & Llantwit Fadre R.D.C.	Gomer S. Morgan, Engineer, School-street, Pontyclun	April 18
Llantrisant Waterworks (2,300 lineal yds. of pipes)	do.	do.	do.
Waterwks. for E. and W. Horrington, Out St. Cuthbert	Wells R.D.C.	A. G. Russ, Poor Law Offices, High-street, Wells	do.
High-level Aqueduct (Waterworks)	Merthyr Tydfil U.D.C.	G. F. Deacon, 16, Great George-street, Westminster, S.W.	do.
Fifty Houses, Brewery-st., Pontygwaith	Penrhys Isaf Building Co., Ltd.	E. Davies, 8, Madeline-street, Pontygwaith	do.
Roads	do.	do.	do.
Gasholder	Mitcham & Wimbledon Dist. Gas Co.	Offices of the Works	do.
Materials and Team Labour	Rutland C.C.	B. A. Adam, Clerk, Oakham	April 20
Road Material	Houghton-le-Spring R.D.C.	D. Balfour, Engineer, Houghton-le-Spring, R.S.O.	do.
Apparatus for Teaching Mechanical, etc., Laboratories	Plymouth Education Authority	E. Chandler Cook, Education Secretary, 18, Princess-sq., Plymouth	April 26
New Curve and Widening, Throstle Nest, Manchester	Cheshire Lines Committee	H. Blundell, Engineer, Central Station, Liverpool	April 27
*Erection of Public Library	Borough of Southend-on-Sea	Town Clerk, Town Clerk's Office, Southend-on-Sea	do.
Infirmary, Laundry, Boiler-House, etc., at Workhouse	Boston Guardians	J. M. Simpson, Clerk, 28, Wide-bargate, Boston	April 29
Heating Infirmary Buildings	do.	do.	do.
Two Lancashire Boilers	Bishop's Stortford U.D.C.	T. Swatheridge, Clerk, Council Offices, Bishop's Stortford	May 8
Steam Pumping Engine and Pumps	do.	do.	do.
Gas-Pumping Engine and Pumps	do.	do.	do.
Refuse Destructor and Flag-Making Plant	Municipal Council, Sydney, N.S.W.	Acting Agent-General, Victoria-street, Westminster, S.W.	May 30
Iron and Steel	Sec. of Pub. Wks., Sydney, Australia	Agent-General's Office, 9, Victoria-street, London, S.W.	Sept. 1
Carnegie Free Library, Swinton, near Rotherham	.....	J. E. Knight, Architect, 33, College-street, Rotherham	No date,
Additions, etc., Shenington School, near Banbury	.....	Tollett & Lee, Architects, 7, St. Aldgate's, Oxford	do.
3 Water-Clos., New Drainage, etc., Ditchingham Hosp.	The Managers	A. Pells, F.S.I., Architect, Beccles	do.
Grain Store and Buildings, Harraby Mill	.....	C. Ling, Devonshire-street, Carlisle	do.
Filling in Centre Cliff Breakwater	Southwold Corporation	Borough Surveyor, Town Hall, Southwold	do.
*New Baptist Church, Eastleigh	The Committee	J. Wills & Sons, Architects, Victoria-chambers, Derby	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*Clerk of Works	Tottenham U.D.C.	4*l.* per week	April 12
*Clerk of Works	Middleton Corporation	3*l.* per week	April 15

Those marked with an (*) are advertised in this number. *Competitions*, iv. *Contracts*, iv. vi. viii. x. *Public Appointments*, xx.

TENDERS—*Continued from page* 363.

CARDIFF.—For forming and metalling, etc., the carriageway, Swansea-street, Menelaus-street, Bridgend-street, and Moorland-road, for the Corporation. Mr. W. Harpur, Borough Engineer, Town Hall, Cardiff:—

—	Swansea-street.	Bridgend-street.	Moorland-road.	Menelaus-street.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
A. Simms	1,424 18 0	61 0 2	185 15 0	211 18 0
E. Osmond & Sons, Ely, Cardiff	1,069 4 6*	47 0 8*	160 12 9	168 6 9
T. R. Williams, Cardiff	1,081 13 3	49 13 9	151 13 7*	133 8 3*

HENDON.—For granite chippings, for the Urban District Council:—

—	—	Gauge.	Midland Railway. Mill Hill	Hendon	C'Wood	G.N.R. Mill Hill
			Per ton s. d.	Per ton s. d.	Per ton s. d.	Per ton s. d.
J. H. Dickson	Devon Basalt or Trusham	¾-in.	14 0	14 0	14 0	—
J. H. Dickson	Devon Basalt or Trusham	½-in.	13 9	13 9	13 9	—
J. H. Dickson	Devon Basalt or Trusham	Fine for grouting	13 6	13 6	13 6	—
Tar Macadam (Purnell Hooley's Patent) Syndicate, Ltd. (R. V. Parker, Agent)	Tarmac	¾-in.	16 9	16 9	16 9	17 9
G. A. Watson & Co., Ltd.	Enderby	¾-in.	9 8	9 8	9 8	—
G. A. Watson & Co., Ltd.	Enderby	½-in.	9 2	9 2	9 2	—
G. A. Watson & Co., Ltd.	Enderby	Fine for grouting	8 5	8 5	8 5	—
Rowley Regis Granite Quarries, Ltd.	Rowley Regis	¾-in., ½-in., & fine	10 8	11 1	10 8	10 8
Cliffe Hill Granite Co., Ltd.	Cliffe Hill	¾-in., ½-in., & fine	8 3	8 3	8 3	8 7
Cliffe Hill Granite Co., Ltd.	Cliffe Hill	¾-in. to 3-16-in	8 9	8 9	8 9	9 1
Whitwick Granite Co., Ltd.	Whitwick	¾-in. and ½-in.	7 9	7 9	7 6	7 7
Whitwick Granite Co., Ltd.	Whitwick	Fine for grouting	8 9	8 9	8 6	8 7
Groby Granite Co., Ltd.*	Groby	¾-in.	7 6	7 6	7 6	7 6
Groby Granite Co., Ltd.*	Groby	½-in. and fine	8 0	8 0	8 0	8 0
B. J. Forder & Son	Marston Hall	¾-in. and ½-in.	8 0	8 0	8 0	8 0
Enderby & Stoney Stanton Gnte. Co. Ld.	Enderby, etc.	¾-in. and ½-in.	9 0	9 0	9 0	9 0
Enderby & Stoney Stanton Gnte. Co. Ld.	Enderby, etc.	Fine for grouting	8 6	8 6	8 6	8 6
J. Wainwright & Co.	Basalt and Mendip	Coarse	11 6	11 3	11 3	11 6
		Fine	12 6	12 3	12 3	12 6

KIRKCALDY.—For the extension of the East Pier, for the Town Council:—

C. Brand & Son, 65, Renfield-street, Glasgow* £25,991 19 7

LEICESTER.—For erecting a manager's house and boundary-wall at the new pumping-station at Belgrave, for the Sewage Works and Farms Committee. Mr. E. G. Mawbey, Borough Engineer, Town Hall, Leicester:—

W. Agar	£1,510 9 11	Haskard, Rudkin, & Beck	£1,029 0 0
Hutchinson & Son	1,349 0 0	Bowles & Son	1,015 3 0
J. M. & R. Barrow	1,260 0 0	W. Hanson	1,012 0 0
T. Herbert	1,168 0 0	Clarke & Garratt	985 0 0
W. M. Sharpe	1,154 9 3	Bradshaw Bros.	978 0 0
J. E. Johnson & Sons	1,154 0 0	Leicester Builders, Ltd.	971 8 5
H. Herbert & Sons	1,122 10 0	W. Potter	966 17 5
J. Chapman	1,114 8 0	E. Fox, Evington-st., Leicester*	960 0 0
A. & W. Chambers	1,085 15 4		
J. Cole	1,075 0 0		
J. Rudkin & Son	1,051 13 5		

LLANDAFF.—For the first section of St. Michael's Theological College, Llandaff, for the Council of the College. Mr. Kempson, architect. Qantities by Mr. Charles Taylor, Hereford and Cardiff:—

Broad & Co.	£11,005 0 0	Wilcocks & Co.	£9,411 0 0
Stephens & Bastow	10,997 0 0	Bowen & Co.	9,350 0 0
D. Davies	10,973 0 0	W. A. Linton	9 300 0 0
Shepton	9,945 0 0	Turner & Sons	8,895 0 0
Estcourt & Sons	9,800 0 0	Knox & Wells	8,885 0 0
W. Thomas & Co.	9,633 0 0	Beavom	8,800 0 0
		J. Allan & Co.	8,601 0 3

LONDON EDUCATION COMMITTEE'S TENDERS.

Haggerston, Shap-street (Heating Apparatus).

Davis & Bennett	£369 0	J. Defries & Sons, Ltd.	£321 0
G. N. Haden & Sons	364 0	Paragon Heating Co.	294 4
J. Yetton & Co.	360 0	W. Truswell & Son, Durham	
Mackenzie & Moncur, Ltd.	350 0	Foundry, Sheffield*	292 10
Purcell & Nobbs	348 0		

Clapham, Larkhall-lane (Improvements).

W. J. Mitchell & Son	£15,798	F. & H. F. Higgs	£14,458
Lathey Bros.	15,519	W. Downs	14,456
W. Smith & Son	15,074	J. Garrett & Son	14,383
Spencer, Santo, & Co., Ltd.	14,988	Stimpson & Co.	14,300
J. & C. Bowyer	14,974	J. Smith & Sons, Ltd.	14,250
W. King & Son	14,800	Holliday & Greenwood, Ltd.	14,078
Holloway Bros. (London), Ltd.	14,766	J. Appleby & Sons	13,700
J. Carmichael	14,681	Hudson Bros.	13,609
J. Marsland & Sons	14,579	W. Johnson & Co., Ltd., Bellevue-road, Wandsworth Common‡	13,205
J. & M. Patrick	14,551		
J. Simpson & Son	14,545		

‡ Recommended for acceptance.

[The architect's estimate comparable with these tenders is 14,494*l.*]

LONDON.—For Shepherd's Bush Sorting Office:—

		Credit Old Material.
J. Haydon & Sons	£4,860 0 ..	—
Fowler & Co.	2,704 0 ..	£16 11 6
W. J. King	2,640 0 ..	39 0 0
Mattock & Parsons	2,593 0 ..	20 0 0
Snewin Bros. & Co.	2,590 0 ..	£59 0 0
W. Willett	2,560 0 ..	34 0 0
Prestige & Co.	2,554 0 ..	17 0 0
G. Neal	2,549 0 ..	15 0 0
T. Mills & Son	2,525 0 ..	10 0 0
A. Woods	2,500 0 ..	18 11 0
Leslie & Co., Ltd.	2,497 0 ..	16 0 0
G. Parker	2,475 0 ..	8 0 0
W. J. Dickens	2,460 0 ..	20 0 0
C. Ansell	2,452 0 ..	69 0 0
W. Taylor & Co.	2,450 0 ..	75 0 0
H. Kent	2,449 0 ..	27 0 0
F. & A. Willmott	2,429 0 ..	30 0 0
J. Garrett & Son	2,422 0 ..	10 0 0
Speechley & Smith	2,417 0 ..	20 0 0
General Builders, Ltd.	2,403 0 ..	30 0 0
Chambers Bros.	2,395 0 ..	—
T. H. Kingerlee & Sons	2,369 0 ..	—
E. A. Roome & Co.	2,369 0 ..	40 0 0
H. J. Williams, Ltd.	2,347 0 ..	30 0 0
T. D. Leng	2,318 0 ..	32 0 0
E. J. Clayton	2,317 0 ..	17 0 0
Wilkinson Bros.	2,300 0 ..	10 0 0
J. Smith & Sons, Ltd.	2,298 0 ..	35 0 0
Spencer, Santo, & Co., Ltd.	2,293 0 ..	—
Martin Wells & Co., Ltd.	2,290 0 ..	—
Wisdom Bros.	2,250 0 ..	—
W. Wallis	2,248 0 ..	29 0 0
Banyard & Son	2,245 0 ..	30 0 0
B. E. Nightingale	2,244 0 ..	20 0 0
A. Hudson & Co.	2,242 0 ..	11 0 0
J. Christie	2,197 0 ..	19 0 0
W. J. Renshaw	2,197 0 ..	25 0 0
J. Appleby & Sons	2,194 0 ..	50 0 0
R. Dean & Co.	2,190 4 ..	30 4 0
J. Shelbourne & Co.	2,179 0 ..	5 0 0
Galbraith Bros.	2,133 0 ..	33 0 0

LONDON.—For building a dwelling-house in the Manor Way, Lee-road, Lee, S.E., for Mr. H. McAuliffe. Mr. L. V. Hunt, architect:—

Green	£2,150	L. Whitehead & Co.	£2,038
Collingwood	2,117	W. Akers & Co.	1,887
J. & C. Bowyer	2,083	Kennard Bros.*	1,848

LOCHGELLY.—For levelling, draining, and forming roads, with fencing and gates, for proposed public park, for the Magistrates and Town Council Messrs. Buchanan & Bennett, C.E., 12, Hill-street, Edinburgh. Quantities by engineers :—

Mitchell & Sons	£1,221 7 5	J. Martin ..	£1,189 14 10
		R. Gilmour .	1,011 11 8

NORWICH.—For alterations and addition to Free Library, for the Free Library Committee. Mr. A. E. Collins, City Engineer, Guildhall, Norwich :—
J. S. Smith, 24, City-road, Norwich £1,547

PRESCOT.—For enlarging the dining-hall at Whiston Workhouse, for the Guardians. Mr. James Gandy, architect, Masonic-buildings, St. Helens. Quantities by architect :—
C. J. Middlehurst, St. Helens* £359
[Thirteen tenders received.]

REIGATE.—For erecting cottage, Blackhorse-lane. Mr. C. E. Salmon, architect :—

W. Wickman	£416	J. King & Son*	£380

SELLY OAK.—For erecting a public library, for the King's Norton and Northfield Urban District Council. Mr. A. W. Cross, Engineer, 23, Valentine-road, King's Heath :—
G. Webb, Handsworth £2,872

SPROWSTON (Norfolk).—For the erection of an infants' school, for the Norfolk County Council. Mr. C. J. Brown, architect and surveyor, Cathedral Offices, The Close, Norwich :—

R. Burton ..	£2,620 15 9	Boddy & Son	£1,585 0 0
Riches	1,750 0 0	Chapman & Son	1,578 0 0
Youngs & Son	1,693 0 0	G. Stowers, 143, Sprowston-road, Norwich* ..	1,540 0 0
Gill	1,690 0 0		
Lincoln	1,657 0 0		
Scarles Bros.	1,633 0 0		
Hannent	1,625 0 0		
Greengrass ..	1,587 0 0		

STIRCHLEY.—For erecting a public library, for the King's Norton and Northfield Urban District Council. Mr. A. W. Cross, Engineer, 23, Valentine-road, King's Heath :—
G. Webb, Handsworth £2,868

STOW-ON-THE-WOLD (Gloucester).—For the erection and completion of a new rectory house, for the Rev. J. T. Evans, M.A. Messrs. Healing & Overbury, architects, Cheltenham and Gloucester :—

T. Burden ..	£2,709 2 0	Collins & Godfrey ..	£2,130 0 0
G. Howman & Co.	2,311 13 10	Estcourt & Sons, Gloucester‡	2,120 0 0
A. Groves & Sons	2,301 11 0		
Byard & Son	2,227 0 0		

‡ Accepted subject to certain modifications.

TIVERTON.—For additions to a house, Blundell's School, for the Governors. Mr. W. Barrons, architect, Deepway, Tiverton :—

Nicks Bros.	£1,950 0	W. Loosemore ..	£1,595 0
Labdon & Sons	1,854 0	J. Grater & Sons, Tiverton* ..	1,594 10
R. Grater & Sons	1,598 0		

TIVERTON.—For new house, Blundell's-road, Tiverton, for Mr. E. F. Clarke. Mr. W. Barrons, architect, Deepway, Tiverton :—
J. Grater & Sons, Tiverton* £1,021
[No competition.]

TWYNING.—For erecting a new Council school at Twyning, near Tewkesbury, for the Education Committee of the Gloucestershire County Council. Mr. R. S. Phillips, Surveyor to Committee, Shire Hall, Gloucester :—
Collins & Godfrey, Tewkesbury* £1,830

WELLINGBOROUGH.—For laying 1,600 sq. yds. of asphalt footpath, for the Rural District Council. Mr. G. F. Bearn, Surveyor, Market-square, Wellingborough :—

	Per yd. s. d.		Per yd. s. d.
J. Smart.....	2 0	Scudamore & Co. ..	1 9
Goodman & Murkitt	1 10	W. G. Wilmot	1 9
R. Radford	1 10	Constable, Hart, & Co., Kentish Town*	1 7
J. J. Ingram	1 9		
F. Henson	1 9		

WHITCHURCH (Salop).—For erecting a Wesleyan Chapel at Lightwood Green. Mr. J. H. Pickard, architect, Whitchurch. Quantities by architect :—

J. Harding ..	£1,035 18 2	T. L. Kendall	£864 0 6
Dodd & Son ..	990 0 0	Chesters & Holland, Whitchurch*	845 0 0
S. Manley	969 10 0		
G. Edge	963 10 0		
Stretton & Gibson	930 17 0		

WIDNES.—For the enlargement of West Bank Council School, for the Education Committee. Mr. F. U. Holme, architect, Westminster-chambers, 1, Cross-hall-street, Liverpool :—

S. Webster	£597 0	W. Podmore	£545 0
C. W. Devonport	590 0	Duthie & Dobson	531 0
J. Crake	586 0	J. Lucas & Son ..	529 10
W. Hall & Son ..	581 10	Parker & Son	529 10
Holme & Green ..	575 0	J. Rothwell & Sons	526 0
W. Jones	565 0	J. & E. Rimmer	512 0
J. Gerrard & Sons	563 0	J. Mercer, Ditton*	498 0
J. Beech.....	555 0	G. Woods & Sons	487 0
J. Penney	553 0		
P. Tyson.....	546 0		

WINTON.—For erecting a chapel and vestries at Winton, near Bournemouth, for the Primitive Methodist Connexion. Mr. T. E. Grimes, architect, 71, Talbot-road, Winton :—

G. Shears & Son	£1,948 10 0	Jones & Seward.....	£1,649 0 0
S. Brown & Sons	1,794 13 0	A. J. Colborne	1,619 8 0
T. Dean	1,720 0 0	E. H. Crabb, Parkstone, Bournemouth* ..	1,450 0 0
G. A. Drake	1,716 10 0		
Burt & Okerrett	1,705 18 9		

YARDLEY.—For sewerage works, Acock's Green, South-east, for the Rural District Council. Mr. A. W. Smith, Engineer, Council House, Sparkhill, near Birmingham :—
Currall, Lewis, & Martin, Icknield Port-road, Birmingham £1,899 10 2

YNYSHIR.—For erecting about sixty-five cottages, for the Standard View Building Club. Messrs. Teather & Wilson, architects and surveyors, Andrew's-buildings, Queen-street, Cardiff :—
Two-sized Cottages.

D. Richards	£235 0 0
	220 0 0
D. Davies	215 0 0
	195 0 0
Jones Bros.	198 10 0
	187 15 0
W. Jones, Wattstown*	198 10 0
	176 0 0

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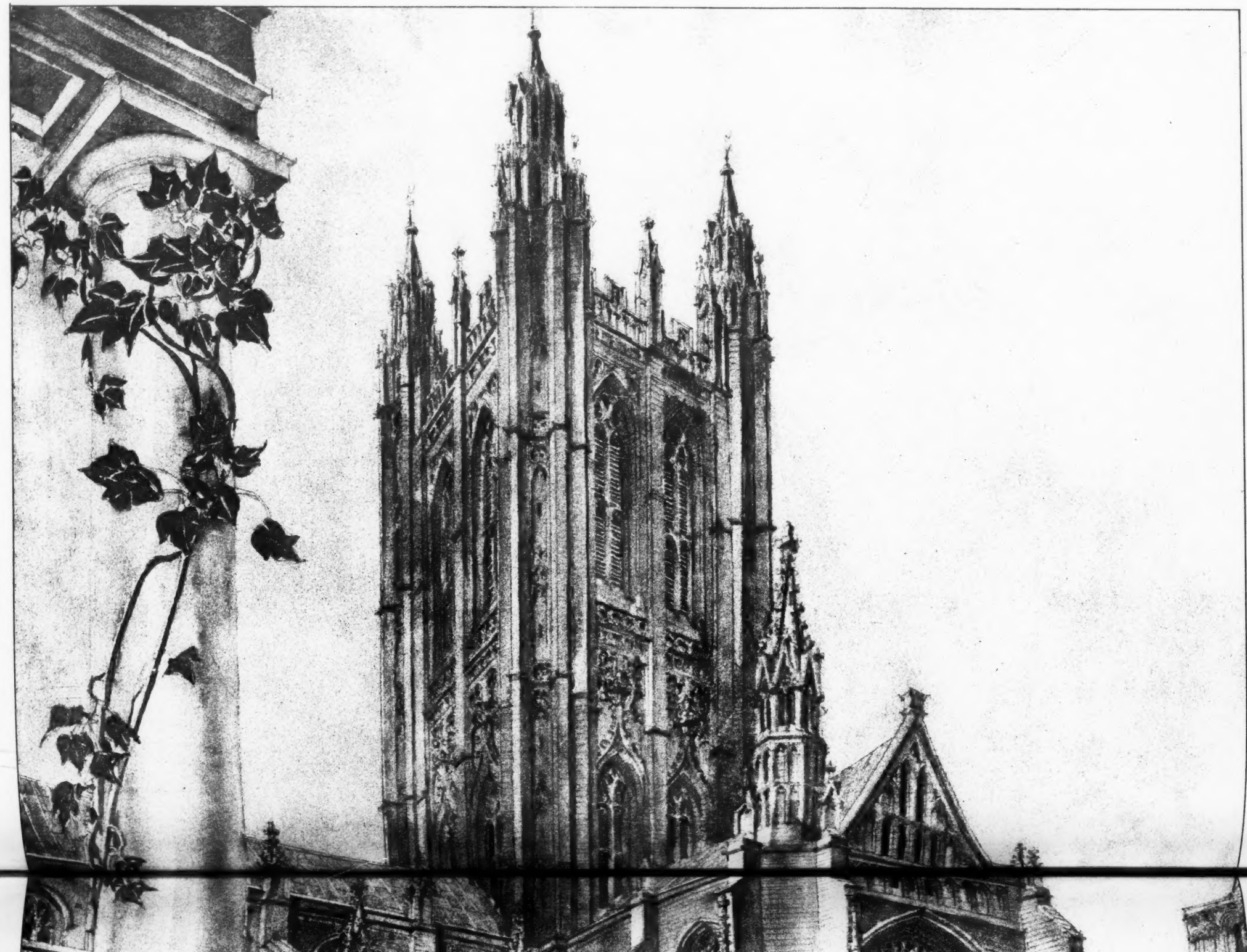

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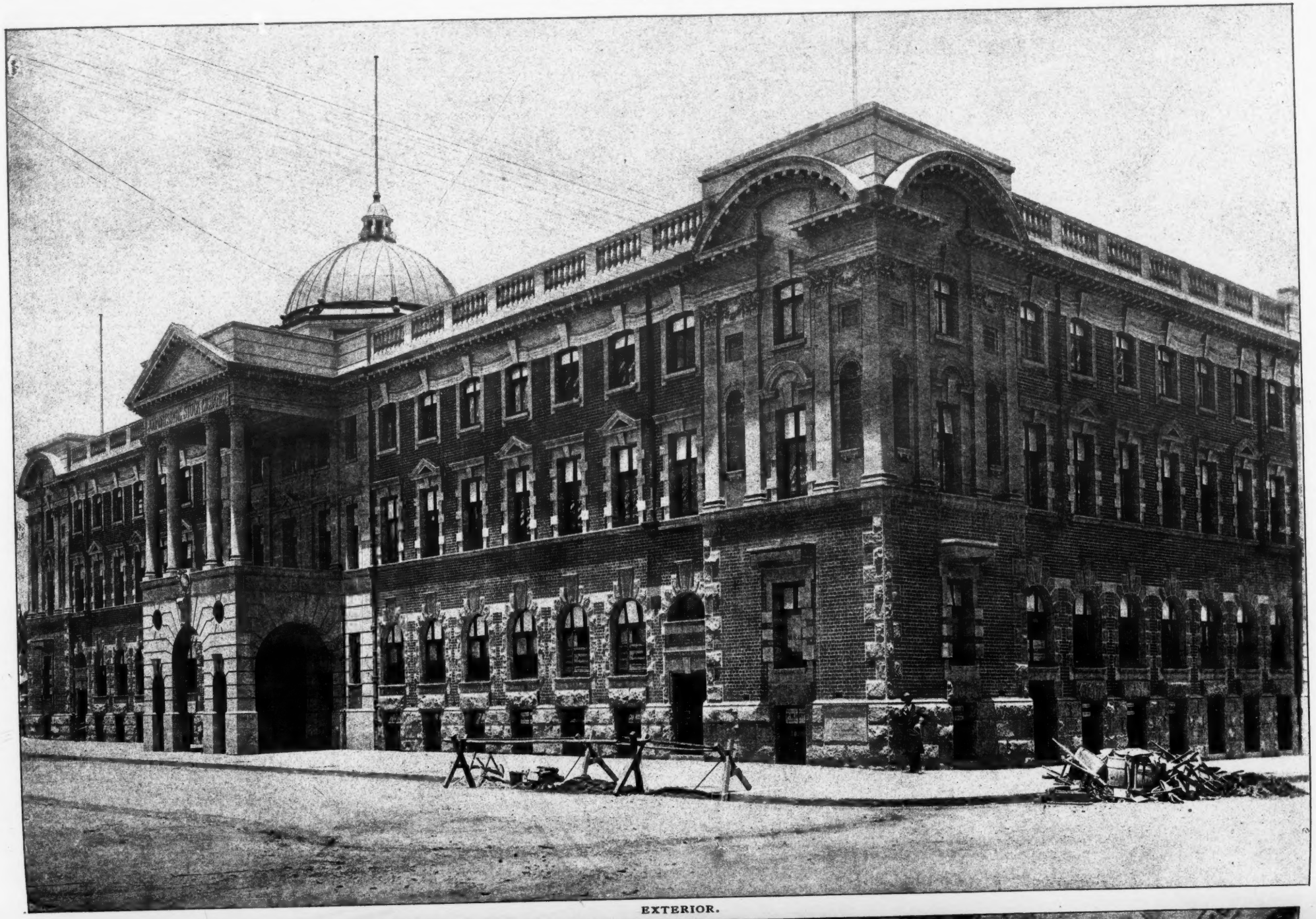
CANTERBURY CATHEDRAL FROM THE SOUTH-WEST.—From a Drawing by Mr. J. B. Fulton.



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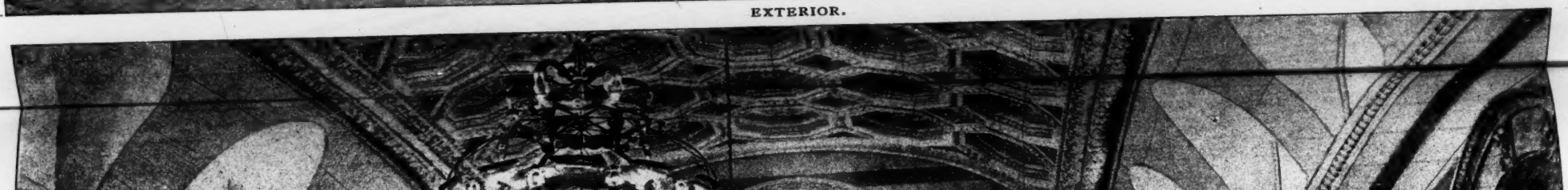

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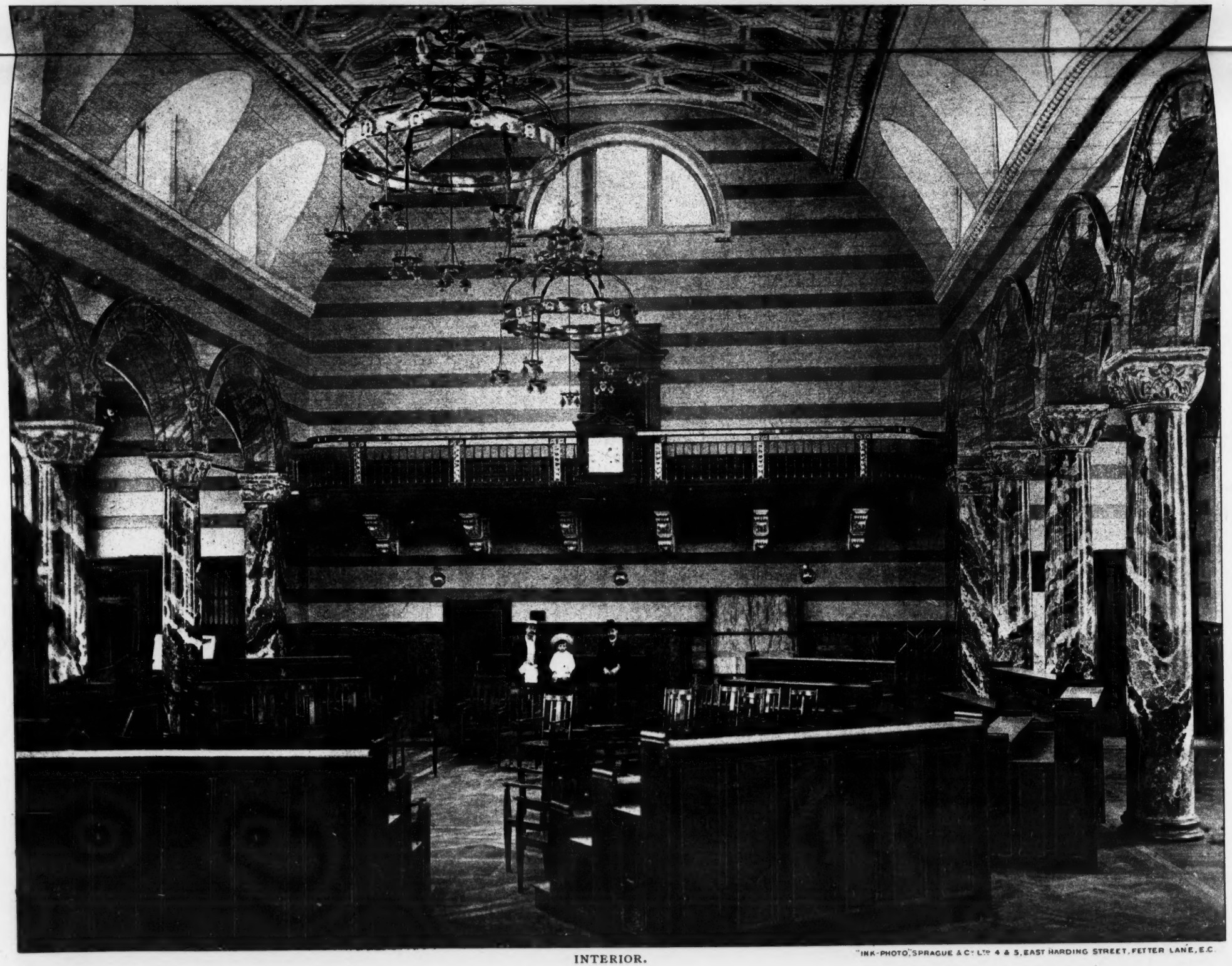

INTERIOR.

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NEW STOCK EXCHANGE, JOHANNESBURG.—Messrs. Leck & Emley, Architects.

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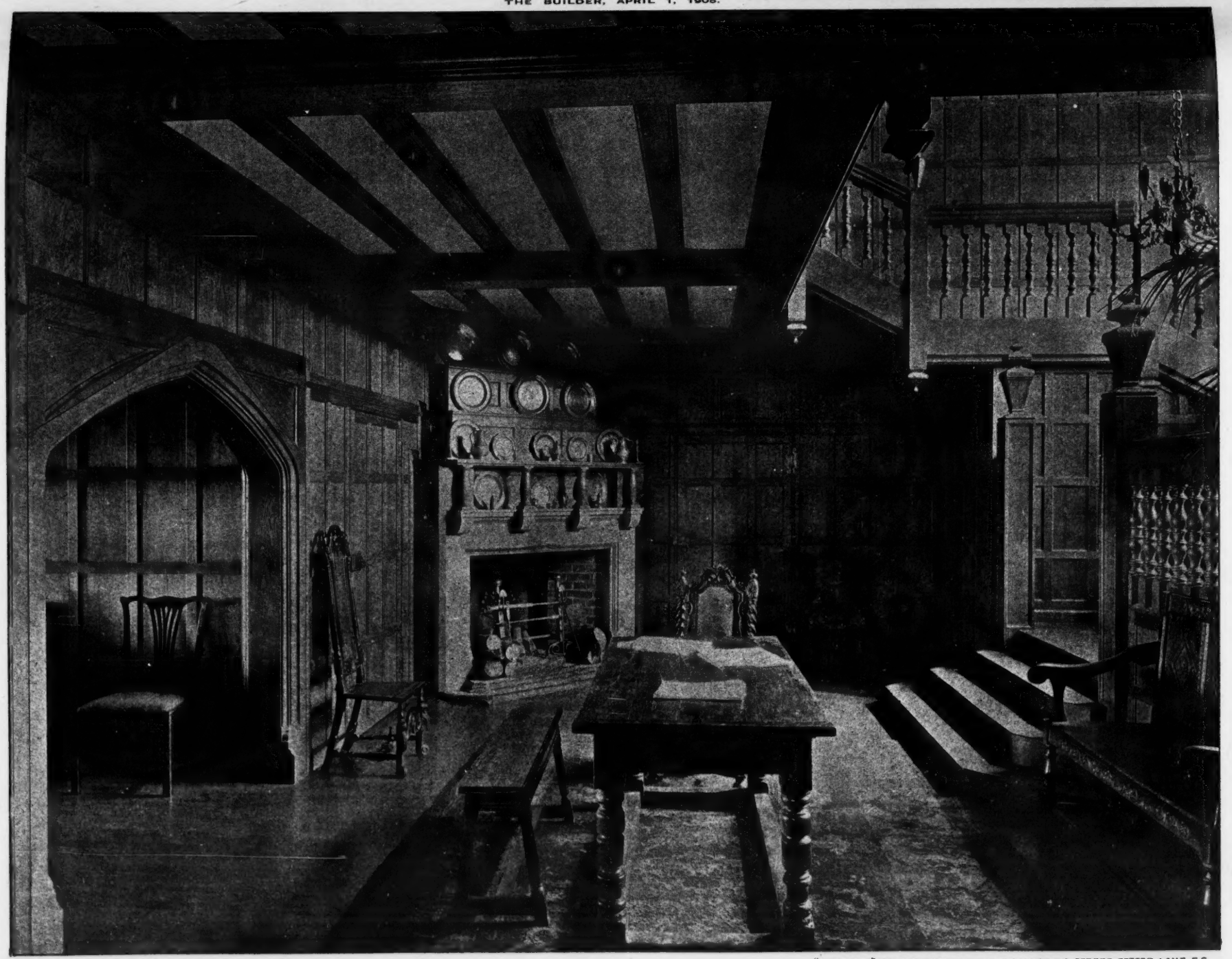

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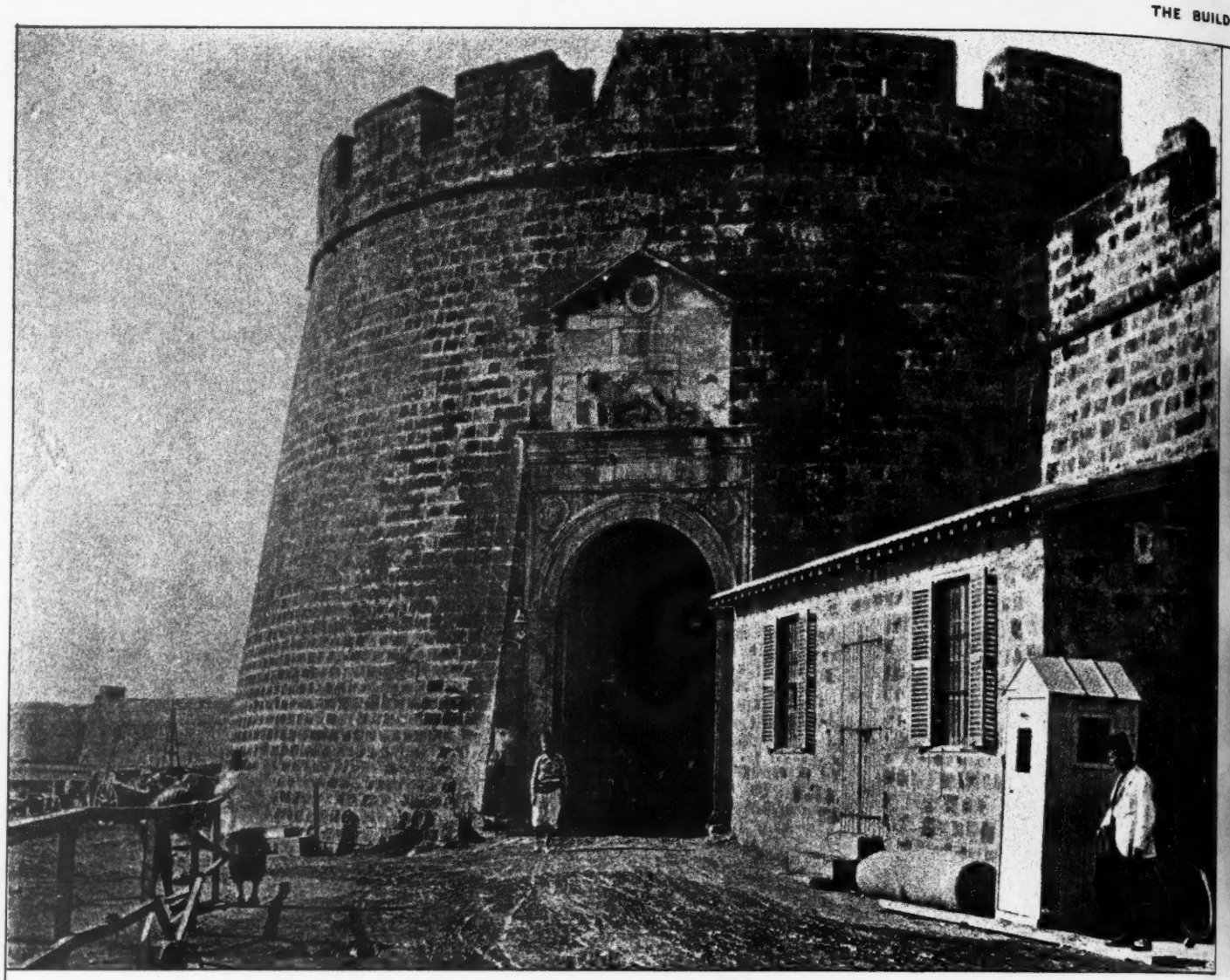
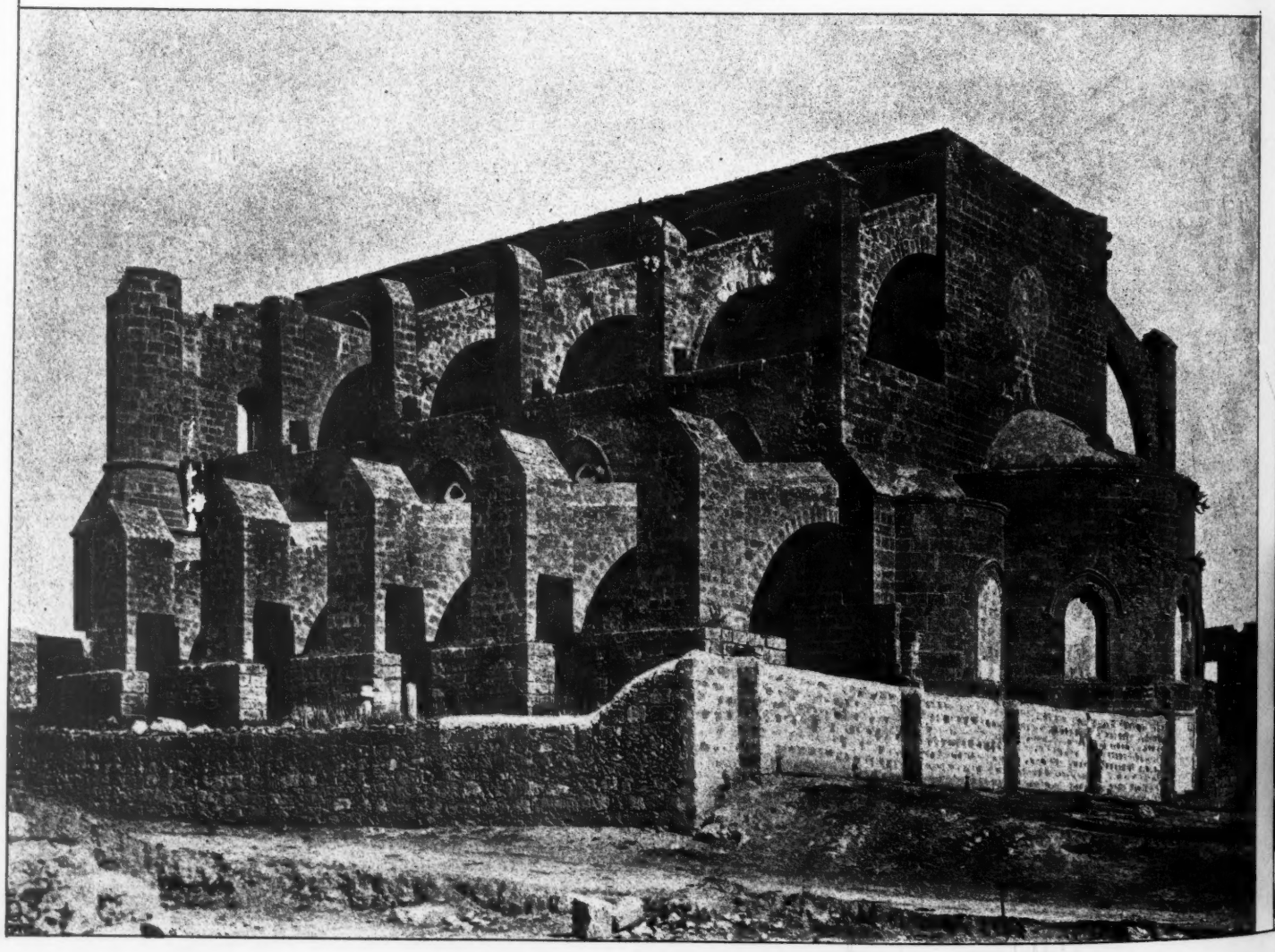
GREAT HOUSE COURT: THE HALL.—Mr. E. Turner Powell, Architect.



HARBOUR GATE (EXTERIOR).



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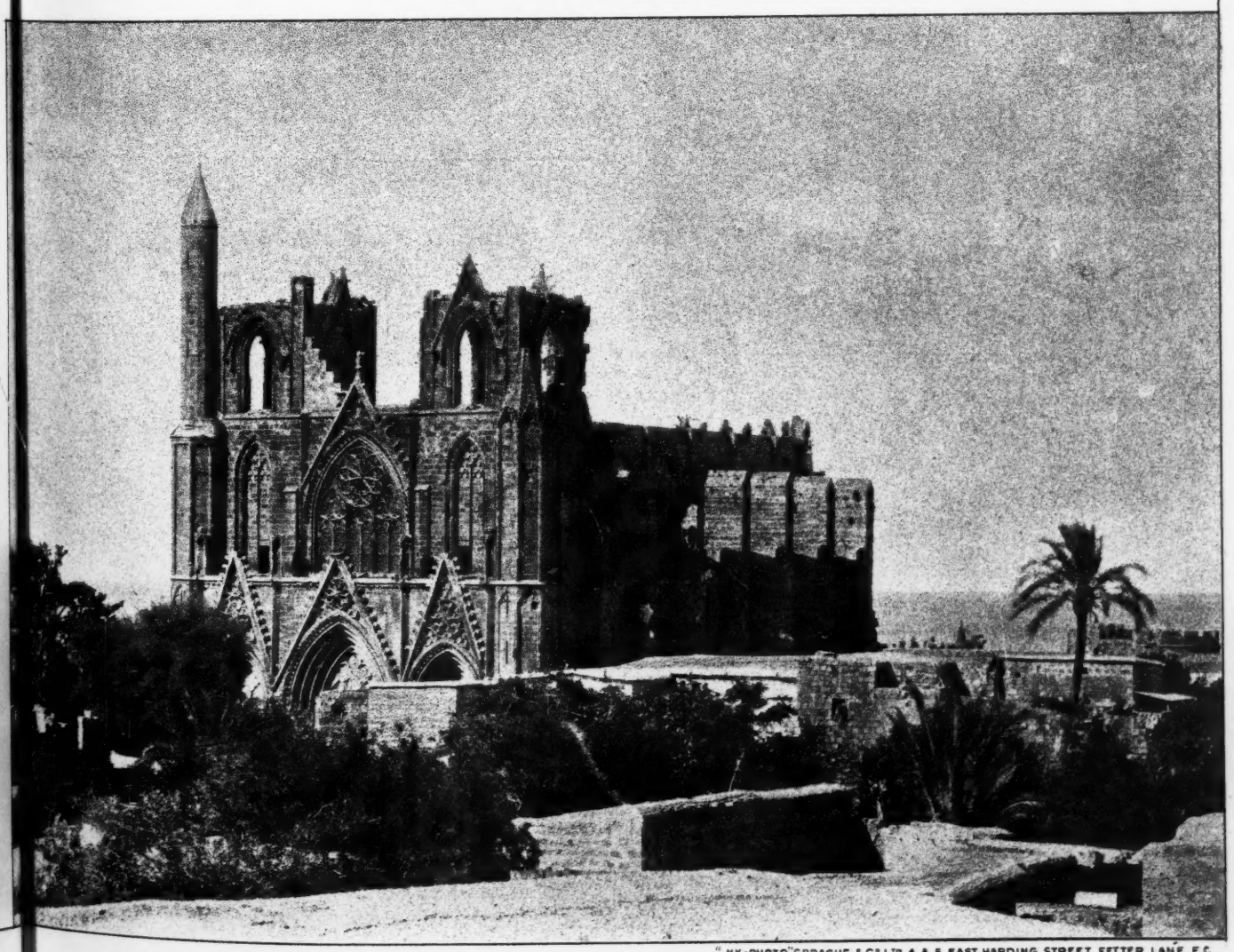

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